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**Twelve-Year Planetary
Ephemeris: 1995-2006**

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PREFACE

Planetary research programs often require detailed solar system ephemerides to assist in long range planning for telescope time at major astronomical observatories or for Earth orbiting and interplanetary spacecraft missions. The planetary community's chief source for such information is the Astronomical Almanac (or AA) which is prepared jointly by the U. S. Naval Observatory and the Royal Greenwich Observatory. Unfortunately, AA is not available earlier than six months before the beginning of each year. This creates a void for accurate ephemeris data needed more than a year in advance.

With proliferation of personal computers over the past decade, a number of ephemeris programs have become available which allow anyone to quickly calculate planetary circumstances for any date in the near future with reasonable accuracy. Nevertheless, many researchers find it useful to have a planetary ephemeris in hard copy so that they can quickly and more conveniently make comparisons between different observing seasons or planets. Since the publication of Ten Year Planetary Ephemeris: 1986 - 1995 [Espenak, 1986], many of my colleagues in the AAS/DPS¹ have urged me to update it and make it available to as large a segment of the planetary community as possible. However, the new publication should overcome a number of its predecessor's shortcomings by adding a lunar ephemeris and by including physical aspect geometry data for the planets. It should utilize the most accurate planetary ephemeris available and should provide these data at a temporal frequency higher than 5 days.

The Twelve Year Planetary Ephemeris: 1995 - 2006 (or TYPE) is an attempt to address these requirements and fill the void for accurate solar system ephemerides during the next twelve years. It is not meant to replace AA since it does not provide planetary ephemerides as frequently nor with as much detail. For instance, TYPE does not include heliocentric coordinates, natural satellite or minor planet ephemerides. Nevertheless, TYPE does present accurate geocentric positions as well as physical aspect geometry's for the Sun, the Moon and the eight major planets: Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. Furthermore, TYPE includes one particularly useful parameter missing from AA. The geocentric radial velocity of a planet is of special interest to high resolution spectroscopic investigations, particularly at infrared, microwave, sub-millimeter, millimeter, and radio frequencies. Although not listed in AA, geocentric radial velocities are essential to the successful planning, data reduction and analysis of such investigations. In addition, TYPE includes the solar elongation or geocentric angle between the Moon (or planet) and the Sun. Elongation's are measured from 0° to 180°, east or west of the Sun. Eastern elongation's place the planet in the evening sky, while western elongation's place the planet in the morning sky. Elongation's of 0°, 90°E, 180° and 90°W correspond to solar conjunction, eastern quadrature, opposition and western quadrature, respectively. The value of the elongation is that it quickly gives the position of the planet with respect to the Sun without comparing the specific coordinates of the two bodies.

The fundamental ephemerides of the Sun, Moon and planets are based on the JPL DE200/LE200² [Standish, 1982a, 1982b] and include the effects of light-time travel, nutation and the aberration of starlight. Since both TYPE and AA use the JPL DE200/LE200, the geocentric coordinates in TYPE and AA for 1995 are in perfect agreement to within the precision of the published values (0.1 arc-seconds). The one exception is Pluto, whose orbit is not well characterized. The AA does not use the DE200 for Pluto, but instead uses an astrometric ephemeris which is comparable with observations referred to catalog mean places of comparison stars for J2000.0. As a result, Pluto's geocentric coordinates in AA for 1995 and TYPE differ by up to 13 seconds in RA and 50 arc-seconds in declination. Nevertheless, the Pluto coordinates published in TYPE are more than adequate for planning purposes.

The first three sections of TYPE constitute the greater portion of this work and consist of ephemerides for the Sun, the Moon and major planets, respectively. The final two sections tabulate the Moon's phases, and identify notable planetary configurations. Throughout TYPE, a bold header at the top of every page quickly identifies the planet and year. Each section is described in more detail as follows.

Section 1 is a twelve year geocentric ephemeris for the Sun tabulated at 2-day intervals. It lists both the Gregorian and abbreviated Julian dates, the right ascension and declination of the Sun for the mean equinox of date at 00:00:00 TDT (Terrestrial Dynamical Time), the distance of the Sun from Earth, the geocentric radial velocity, and the apparent angular diameter. Finally, the physical aspect geometry gives the heliographic latitude and longitude of the sub-Earth point of the solar disk, followed by the position angle³ of the Sun's rotation axis. Physical aspect geometry is calculated with elements from Carrington [1863].

¹ Division of Planetary Sciences of the American Astronomical Society.

² Jet Propulsion Laboratory Developmental Ephemeris 200 and Lunar Ephemeris 200. This is a numerical integration ephemeris based on optical, radar, and spacecraft observations of the planets.

³ Unless noted otherwise, all position angles are measured eastwards (counter-clockwise) from the celestial north point of the solar, lunar, or planetary disk.

Section 2 provides a twelve year geocentric ephemeris for the Moon. Due to its rapid apparent motion, the Moon's ephemeris is given at 1-day intervals. The lunar tables include the Gregorian date, the right ascension and declination of the Moon for the mean equinox of date at 00:00:00 TDT (Terrestrial Dynamical Time), the distance of the Moon from Earth, the equatorial horizontal parallax, and the apparent angular diameter. The physical aspect geometry gives the lunar libration (optical + physical) in latitude and longitude plus the position angle of the Moon's rotation axis. The Sun's selenographic colongitude and the position angle of the midpoint of the Moon's bright limb follow. Finally, the Moon's age, phase and elongation from the Sun are listed. Optical librations are calculated from the formulae of Encke [1843].

Section 3 contains a twelve year geocentric ephemeris for the major planets of the Solar System: Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. Ephemerides for the five classic planets (Mercury through Saturn) are listed at 2-day intervals. Due to their slow apparent motion, ephemerides for Uranus, Neptune and Pluto are tabulated at 4-day intervals. The planetary tables include the Gregorian date, the right ascension and declination of the planet for the mean equinox of date at 00:00:00 TDT (Terrestrial Dynamical Time), the distance of the planet from Earth and from the Sun, the geocentric radial velocity, the apparent visual magnitude, and the apparent equatorial angular diameter. The physical aspect geometry gives the phase, the planetocentric latitude and longitude of the sub-Earth point on the planetary disk, and the position angle of the planet's rotation axis. Finally, L_s (planetocentric orbital longitude of Sun) and the planet's elongation from the Sun are listed. Visual magnitudes for the planets were calculated using expressions from Harris [1961]. The planetary aspect geometry was calculated via algorithms from the *Explanatory Supplement* [1974] with orbital elements from Meeus [1991] using cartographic coordinates and rotational elements published by Davies *et al.* [1989]. At the beginning of sections 1, 2 and 3, special keys give definitions or descriptions of every column in each table. Additional information, explanations and descriptions of these parameters may be found in section L of AA.

Section 4 presents the phases of the Moon from 1995 through 2014. During this twenty year period, the dates and times of New Moon, First Quarter, Full Moon and Last Quarter are tabulated for each lunation. This section should be useful for dark moon scheduling or observations where the Moon is needed as a calibration source. Algorithms for calculating lunar phases are based on Meeus [1991] and agree to within ± 2 minutes of values published in AA for 1995.

Section 5 presents a range of different planetary phenomena occurring from 1995 to 2010. They are arranged in chronological order with one page per year. Algorithms for calculating planetary phenomena are based on Meeus [1991]. Among the planetary configurations listed during this period are:

- solstices and equinoxes (Earth)
- aphelion and perihelion (Venus, Earth, Mars, Jupiter and Saturn)
- phases of the Moon
- apogee and perigee of the Moon (with distances in km)
- eclipses of the Sun and Moon (with eclipse type and magnitude)
- greatest elongation, inferior and superior conjunction (Mercury and Venus)
- opposition and solar conjunction (Mars through Pluto)
- close conjunctions/occultations of planets by the Moon (Mercury through Saturn)
(for solar elongation's $> 30^\circ$)

TYPE will be distributed to all planetary scientists who are AAS/DPS members as of September 1994. In addition, TYPE will be mailed to several hundred observatories, libraries, planetariums, and science centers. A limited number of additional copies are available by contacting the author. Electronic versions of the tables are also available via e-mail. All calculations presented in this publication are those of the author and he assumes full responsibility for their accuracy.

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TWELVE YEAR PLANETARY EPHEMERIS: 1995-2006

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SECTION 1

GEOCENTRIC EPHEMERIS FOR THE SUN

1995-2006

TWELVE YEAR PLANETARY EPHEMERIS: 1995 - 2006

SECTION 1: Geocentric Ephemeris for the Sun

<u>Column</u>	<u>Heading</u>	<u>Definition/Description</u>
1	Date (0 DT)	Calendar Date (Gregorian). All ephemeris positions are for 00:00:00 DT (Terrestrial Dynamical Time).
2	JD (2440000+)	Abbreviated Julian Date. To convert to full Julian Date, add 2440000. Julian Date is defined as the number of days elapsed since Greenwich Mean Noon on 0 January 4713 BC.
3	GST (0 DT)	Greenwich Mean Siderial Time at 00:00:00 DT (Terrestrial Dynamical Time).
4	RA (h m s)	Apparent Right Ascension of the Sun for the mean equinox of date (hours, minutes, seconds).
5	Dec (d ' ")	Apparent Declination of the Sun for the mean equinox of date (degrees, arc-minutes, arc-seconds).
6	Delta (a.u.)	Distance of the Sun from Earth in astronomical units (1 a.u. = 1.496×10^8 km).
7	RV (km/s)	Geocentric Radial Velocity of the Sun (kilometers per second).
8	Diam (")	Apparent Angular Diameter of the Sun (arc-seconds).
9	Hel. Lat	Heliographic Latitude of the central point of the solar disk (degrees).
10	Hel. Long	Heliographic Longitude of the central point of the solar disk (degrees).
11	P.A. Axis	Position Angle of the Sun's rotation axis, measured eastwards (counter-clockwise) from the celestial north point of the solar disk (degrees).

1995 SUN

Geocentric Planetary Ephemeris

1995 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 1	9718.5	6:40:42.2	18 43 54.07	-23 -3-14.6	0.983325	-0.071	1951.9	-3.0	349.0	2.3	
JAN 3	9720.5	6:48:35.3	18 52 43.86	-22-53 -3.5	0.983307	-0.018	1951.9	-3.2	322.7	1.3	
JAN 5	9722.5	6:56:28.4	19 1 32.17	-22-41 -3.1	0.983303	0.035	1951.9	-3.4	296.4	0.3	
JAN 7	9724.5	7: 4:21.5	19 10 18.73	-22-27-15.0	0.983316	0.088	1951.9	-3.7	270.0	-0.6	
JAN 9	9726.5	7:12:14.6	19 19 3.33	-22-11-40.7	0.983348	0.141	1951.8	-3.9	243.7	-1.6	
JAN 11	9728.5	7:20: 7.7	19 27 45.75	-21-54-22.2	0.983400	0.193	1951.7	-4.1	217.4	-2.6	
JAN 13	9730.5	7:28: 0.8	19 36 25.82	-21-35-21.3	0.983475	0.245	1951.6	-4.3	191.0	-3.5	
JAN 15	9732.5	7:35:53.9	19 45 3.38	-21-14-40.3	0.983574	0.297	1951.4	-4.5	164.7	-4.5	
JAN 17	9734.5	7:43:47.1	19 53 38.27	-20-52-21.5	0.983698	0.348	1951.1	-4.7	138.3	-5.4	
JAN 19	9736.5	7:51:40.2	20 2 10.39	-20-28-27.2	0.983846	0.398	1950.8	-4.9	112.0	-6.3	
JAN 21	9738.5	7:59:33.3	20 10 39.62	-20 -2-60.0	0.984019	0.449	1950.5	-5.1	85.7	-7.2	
JAN 23	9740.5	8: 7:26.4	20 19 5.92	-19-36 -2.4	0.984215	0.498	1950.1	-5.3	59.3	-8.1	
JAN 25	9742.5	8:15:19.5	20 27 29.20	-19 -7-37.3	0.984432	0.548	1949.7	-5.5	33.0	-9.0	
JAN 27	9744.5	8:23:12.6	20 35 49.42	-18-37-47.6	0.984667	0.596	1949.2	-5.6	6.7	-9.9	
JAN 29	9746.5	8:31: 5.7	20 44 6.50	-18 -6-36.4	0.984917	0.645	1948.7	-5.8	340.3	-10.7	
JAN 31	9748.5	8:38:58.8	20 52 20.36	-17-34 -7.2	0.985180	0.692	1948.2	-5.9	314.0	-11.6	
FEB 2	9750.5	8:46:51.9	21 0 30.94	-17 0-23.2	0.985455	0.739	1947.6	-6.1	287.7	-12.4	
FEB 4	9752.5	8:54:45.1	21 8 38.20	-16-25-27.7	0.985742	0.784	1947.1	-6.2	261.3	-13.2	
FEB 6	9754.5	9: 2:38.2	21 16 42.16	-15-49-24.0	0.986044	0.829	1946.5	-6.3	235.0	-14.0	
FEB 8	9756.5	9:10:31.3	21 24 42.83	-15-12-15.5	0.986361	0.872	1945.9	-6.5	208.7	-14.8	
FEB 10	9758.5	9:18:24.4	21 32 40.26	-14-34 -5.5	0.986695	0.914	1945.2	-6.6	182.3	-15.5	
FEB 12	9760.5	9:26:17.5	21 40 34.50	-13-54-57.2	0.987047	0.954	1944.5	-6.7	156.0	-16.2	
FEB 14	9762.5	9:34:10.6	21 48 25.64	-13-14-54.0	0.987419	0.994	1943.8	-6.8	129.7	-16.9	
FEB 16	9764.5	9:42: 3.7	21 56 13.78	-12-33-59.1	0.987810	1.032	1943.0	-6.9	103.3	-17.6	
FEB 18	9766.5	9:49:56.8	22 3 59.04	-11-52-15.7	0.988222	1.069	1942.2	-6.9	77.0	-18.2	
FEB 20	9768.5	9:57:49.9	22 11 41.55	-11 -9-46.7	0.988653	1.104	1941.3	-7.0	50.7	-18.9	
FEB 22	9770.5	10: 5:43.0	22 19 21.48	-10-26-35.5	0.989100	1.139	1940.5	-7.1	24.3	-19.5	
FEB 24	9772.5	10:13:36.2	22 26 58.94	-9-42-45.2	0.989561	1.172	1939.6	-7.1	358.0	-20.1	
FEB 26	9774.5	10:21:29.3	22 34 34.06	-8-58-19.3	0.990033	1.204	1938.6	-7.2	331.6	-20.6	
FEB 28	9776.5	10:29:22.4	22 42 6.94	-8-13-21.1	0.990512	1.234	1937.7	-7.2	305.3	-21.2	
MAR 2	9778.5	10:37:15.5	22 49 37.68	-7-27-54.0	0.990997	1.263	1936.8	-7.2	279.0	-21.7	
MAR 4	9780.5	10:45: 8.6	22 57 6.41	-6-42 -1.4	0.991488	1.290	1935.8	-7.2	252.6	-22.2	
MAR 6	9782.5	10:53: 1.7	23 4 33.24	-5-55-46.4	0.991983	1.316	1934.8	-7.2	226.3	-22.6	
MAR 8	9784.5	11: 0:54.8	23 11 58.32	-5 -9-12.3	0.992486	1.340	1933.8	-7.2	199.9	-23.1	
MAR 10	9786.5	11: 8:47.9	23 19 21.79	-4-22-22.1	0.992995	1.362	1932.9	-7.2	173.6	-23.5	
MAR 12	9788.5	11:16:41.0	23 26 43.80	-3-35-19.0	0.993513	1.383	1931.8	-7.2	147.2	-23.8	
MAR 14	9790.5	11:24:34.2	23 34 4.51	-2-48 -6.0	0.994041	1.402	1930.8	-7.2	120.8	-24.2	
MAR 16	9792.5	11:32:27.3	23 41 24.09	-2 0-46.0	0.994581	1.418	1929.8	-7.2	94.5	-24.5	
MAR 18	9794.5	11:40:20.4	23 48 42.74	-1-13-21.8	0.995131	1.433	1928.7	-7.1	68.1	-24.8	
MAR 20	9796.5	11:48:13.5	23 56 0.67	0-25-56.0	0.995693	1.447	1927.6	-7.1	41.8	-25.1	
MAR 22	9798.5	11:56: 6.6	0 3 18.07	0 21 28.5	0.996265	1.458	1926.5	-7.0	15.4	-25.3	
MAR 24	9800.5	12: 3:59.7	0 10 35.13	1 8 48.9	0.996843	1.468	1925.4	-6.9	349.0	-25.6	
MAR 26	9802.5	12:11:52.8	0 17 52.02	1 56 2.3	0.997424	1.477	1924.3	-6.8	322.6	-25.8	
MAR 28	9804.5	12:19:45.9	0 25 8.86	2 43 5.7	0.998006	1.484	1923.1	-6.8	296.3	-25.9	
MAR 30	9806.5	12:27:39.0	0 32 25.81	3 29 56.1	0.998585	1.489	1922.0	-6.7	269.9	-26.1	
APR 1	9808.5	12:35:32.2	0 39 43.00	4 16 30.6	0.999160	1.493	1920.9	-6.6	243.5	-26.2	
APR 3	9810.5	12:43:25.3	0 47 0.57	5 2 46.4	0.999731	1.494	1919.8	-6.5	217.1	-26.2	
APR 5	9812.5	12:51:18.4	0 54 18.64	5 48 40.5	1.000297	1.494	1918.7	-6.3	190.7	-26.3	
APR 7	9814.5	12:59:11.5	1 1 37.34	6 34 10.0	1.000861	1.492	1917.7	-6.2	164.3	-26.3	
APR 9	9816.5	13: 7: 4.6	1 8 56.80	7 19 12.3	1.001421	1.488	1916.6	-6.1	137.9	-26.3	
APR 11	9818.5	13:14:57.7	1 16 17.16	8 3 44.5	1.001981	1.483	1915.5	-5.9	111.5	-26.2	
APR 13	9820.5	13:22:50.8	1 23 38.55	8 47 43.9	1.002540	1.475	1914.5	-5.8	85.1	-26.2	
APR 15	9822.5	13:30:43.9	1 31 1.13	9 31 8.0	1.003101	1.465	1913.4	-5.6	58.7	-26.1	
APR 17	9824.5	13:38:37.0	1 38 25.08	10 13 54.2	1.003664	1.454	1912.3	-5.5	32.3	-26.0	
APR 19	9826.5	13:46:30.1	1 45 50.56	10 56 0.0	1.004229	1.441	1911.2	-5.3	5.9	-25.8	
APR 21	9828.5	13:54:23.3	1 53 17.71	11 37 23.0	1.004792	1.427	1910.2	-5.1	339.5	-25.6	
APR 23	9830.5	14: 2:16.4	2 0 46.63	12 18 0.4	1.005351	1.411	1909.1	-5.0	313.1	-25.4	
APR 25	9832.5	14:10: 9.5	2 8 17.43	12 57 49.4	1.005902	1.394	1908.1	-4.8	286.7	-25.2	
APR 27	9834.5	14:18: 2.6	2 15 50.20	13 36 47.4	1.006442	1.375	1907.0	-4.6	260.2	-24.9	
APR 29	9836.5	14:25:55.7	2 23 24.98	14 14 51.7	1.006971	1.354	1906.0	-4.4	233.8	-24.6	
MAY 1	9838.5	14:33:48.8	2 31 1.85	14 51 59.7	1.007486	1.333	1905.1	-4.2	207.4	-24.2	
MAY 3	9840.5	14:41:41.9	2 38 40.84	15 28 8.7	1.007988	1.309	1904.1	-4.0	181.0	-23.9	
MAY 5	9842.5	14:49:35.0	2 46 21.97	16 3 16.2	1.008476	1.284	1903.2	-3.8	154.5	-23.5	
MAY 7	9844.5	14:57:28.1	2 54 5.26	16 37 19.6	1.008951	1.258	1902.3	-3.6	128.1	-23.1	
MAY 9	9846.5	15: 5:21.3	3 1 50.72	17 10 16.4	1.009414	1.229	1901.4	-3.4	101.6	-22.6	
MAY 11	9848.5	15:13:14.4	3 9 38.39	17 42 4.1	1.009868	1.200	1900.6	-3.2	75.2	-22.1	
MAY 13	9850.5	15:21: 7.5	3 17 28.28	18 12 40.5	1.010314	1.168	1899.7	-2.9	48.7	-21.6	
MAY 15	9852.5	15:29: 0.6	3 25 20.43	18 42 3.3	1.010753	1.136	1898.9	-2.7	22.3	-21.1	
MAY 17	9854.5	15:36:53.7	3 33 14.86	19 10 10.4	1.011185	1.102	1898.1	-2.5	355.8	-20.6	
MAY 19	9856.5	15:44:46.8	3 41 11.59	19 36 59.8	1.011610	1.067	1897.3	-2.3	329.4	-20.0	
MAY 21	9858.5	15:52:39.9	3 49 10.59	20 2 29.3	1.012025	1.031	1896.5	-2.0	302.9	-19.4	
MAY 23	9860.5	16: 0:33.0	3 57 11.81	20 26 36.7	1.012426	0.994	1895.8	-1.8	276.5	-18.7	
MAY 25	9862.5	16: 8:26.1	4 5 15.19	20 49 20.1	1.012811	0.956	1895.0	-1.5	250.0	-18.1	
MAY 27	9864.5	16:16:19.3	4 13 20.64	21 10 37.6	1.013178	0.917	1894.3	-1.3	223.5	-17.4	
MAY 29	9866.5	16:24:12.4	4 21 28.05	21 30 27.4	1.013525	0.877	1893.7	-1.1	197.1	-16.7	
MAY 31	9868.5	16:32: 5.5	4 29 37.29	21 48 47.8	1.013851	0.836	1893.1	-0.8	170.6	-16.0	
JUN 2	9870.5	16:39:58.6	4 37 48.19	22 5 37.3	1.014157	0.794	1892.5	-0.6	144.2	-15.3	
JUN 4	9872.5	16:47:51.7	4 46 0.62	22 20 54.3	1.014443	0.751	1892.0	-0.3	117.7	-14.5	
JUN 6	9874.5	16:55:44.8	4 54 14.39	22 34 37.5	1.014709	0.708	1891.5	-0.1	91.2	-13.7	
JUN 8	9876.5	17: 3:37.9	5 2 29.37	22 46 45.8	1.014958	0.663	1891.0	0.1	64.7	-12.9	
JUN 10	9878.5	17:11:31.0	5 10 45.39	22 57 17.9	1.015192	0.617	1890.6	0.4	38.3	-12.1	
JUN 12	9880.5	17:19:24.1	5 19 2.32	23 6 13.2	1.015413	0.571	1890.2	0.6	11.8	-11.3	
JUN 14	9882.5	17:27:17.2	5 27 20.02	23 13 30.9	1.015622	0.524	1889.8	0.9	345.3	-10.4	
JUN 16	9884.5	17:35:10.4	5 35 38.34	23 19 10.3	1.015819	0.476	1889.4	1.1	318.9	-9.6	
JUN 18	9886.5	17:43: 3.5	5 43 57.13	23 23 11.0	1.016003	0.428	1889.1	1.3	292.4	-8.7	
JUN 20	9888.5	17:50:56.6	5 52 16.23	23 25 32.6	1.016171	0.379	1888.8	1.6	265.9	-7.8	
JUN 22	9890.5	17:58:49.7	6 0 35.47	23 26 14.8	1.016320	0.331	1888.5	1.8	239.4	-7.0	
JUN 24	9892.5	18: 6:42.8	6 8 54.64	23 25 17.9	1.016448	0.282	1888.3	2.0	213.0	-6.1	
JUN 26	9894.5	18:14:35.9	6 17 13.54	23 22 41.9	1.016554	0.233	1888.1	2.3	186.5	-5.2	
JUN 28	9896.5	18:22:29.0	6 25 31.95	23 18 27.2	1.016637	0.183	1887.9	2.5	160.0	-4.3	
JUN 30	9898.5	18:30:22.1	6 33 49.67	23 12 34.4	1.016695	0.134</					

1995 SUN

Geocentric Planetary Ephemeris

1995 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	Dec (d ° ')	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	9900.5	18:38:15.2	6 42 6.47	23 5 4.1	1.016730	0.084	1887.7	2.9	107.1	-2.5
JUL 4	9902.5	18:46: 8.4	6 50 22.15	22 55 57.1	1.016742	0.034	1887.7	3.2	80.6	-1.6
JUL 6	9904.5	18:54: 1.5	6 58 36.53	22 45 14.3	1.016733	-0.016	1887.7	3.4	54.1	-0.6
JUL 8	9906.5	19: 1:54.6	7 6 49.46	22 32 56.8	1.016704	-0.066	1887.8	3.6	27.7	0.3
JUL 10	9908.5	19: 9:47.7	7 15 0.79	22 19 5.7	1.016660	-0.117	1887.9	3.8	1.2	1.2
JUL 12	9910.5	19:17:40.8	7 23 10.40	22 3 42.5	1.016601	-0.167	1888.0	4.0	334.7	2.1
JUL 14	9912.5	19:25:33.9	7 31 18.20	21 46 48.4	1.016530	-0.217	1888.1	4.2	308.2	3.0
JUL 16	9914.5	19:33:27.0	7 39 24.09	21 28 24.9	1.016446	-0.267	1888.3	4.4	281.8	3.8
JUL 18	9916.5	19:41:20.1	7 47 28.01	21 8 33.5	1.016346	-0.316	1888.4	4.6	255.3	4.7
JUL 20	9918.5	19:49:13.2	7 55 29.89	20 47 16.0	1.016230	-0.365	1888.7	4.8	228.9	5.6
JUL 22	9920.5	19:57: 6.4	8 3 29.65	20 24 34.2	1.016094	-0.414	1888.9	4.9	202.4	6.5
JUL 24	9922.5	20: 4:59.5	8 11 27.20	20 0 30.2	1.015937	-0.461	1889.2	5.1	175.9	7.3
JUL 26	9924.5	20:12:52.6	8 19 22.47	19 35 6.0	1.015759	-0.509	1889.5	5.3	149.5	8.2
JUL 28	9926.5	20:20:45.7	8 27 15.39	19 8 23.8	1.015557	-0.555	1889.9	5.4	123.0	9.0
JUL 30	9928.5	20:28:38.8	8 35 5.89	18 40 26.0	1.015333	-0.601	1890.3	5.6	96.6	9.8
AUG 1	9930.5	20:36:31.9	8 42 53.92	18 11 14.7	1.015086	-0.647	1890.8	5.8	70.1	10.6
AUG 3	9932.5	20:44:25.0	8 50 39.46	17 40 52.3	1.014819	-0.692	1891.3	5.9	43.7	11.4
AUG 5	9934.5	20:52:18.1	8 58 22.52	17 9 21.2	1.014533	-0.736	1891.8	6.0	17.2	12.2
AUG 7	9936.5	21: 0:11.2	9 6 3.10	16 36 43.7	1.014231	-0.779	1892.4	6.2	350.8	13.0
AUG 9	9938.5	21: 8: 4.4	9 13 41.24	16 3 2.2	1.013916	-0.822	1893.0	6.3	324.3	13.7
AUG 11	9940.5	21:15:57.5	9 21 17.00	15 28 19.0	1.013591	-0.864	1893.6	6.4	297.9	14.4
AUG 13	9942.5	21:23:50.6	9 28 50.46	14 52 36.5	1.013257	-0.905	1894.2	6.5	271.4	15.1
AUG 15	9944.5	21:31:43.7	9 36 21.74	14 15 56.7	1.012911	-0.945	1894.8	6.6	245.0	15.8
AUG 17	9946.5	21:39:36.8	9 43 50.93	13 38 22.2	1.012554	-0.984	1895.5	6.7	218.6	16.5
AUG 19	9948.5	21:47:29.9	9 51 18.13	12 59 55.4	1.012184	-1.022	1896.2	6.8	192.1	17.2
AUG 21	9950.5	21:55:23.0	9 58 43.41	12 20 38.9	1.011798	-1.058	1896.9	6.9	165.7	17.8
AUG 23	9952.5	22: 3:16.1	10 6 6.87	11 40 35.4	1.011396	-1.093	1897.7	7.0	139.3	18.4
AUG 25	9954.5	22:11: 9.2	10 13 28.57	10 59 47.4	1.010977	-1.126	1898.5	7.0	112.8	19.0
AUG 27	9956.5	22:19: 2.3	10 20 48.61	10 18 17.7	1.010539	-1.159	1899.3	7.1	86.4	19.6
AUG 29	9958.5	22:26:55.5	10 28 7.08	9 36 8.9	1.010084	-1.190	1900.1	7.1	60.0	20.2
AUG 31	9960.5	22:34:48.6	10 35 24.08	8 53 23.6	1.009612	-1.220	1901.0	7.2	33.6	20.7
SEP 2	9962.5	22:42:41.7	10 42 39.72	8 10 4.5	1.009126	-1.248	1901.9	7.2	7.1	21.2
SEP 4	9964.5	22:50:34.8	10 49 54.12	7 26 14.3	1.008629	-1.275	1902.9	7.2	340.7	21.7
SEP 6	9966.5	22:58:27.9	10 57 7.41	6 41 55.6	1.008123	-1.301	1903.8	7.2	314.3	22.2
SEP 8	9968.5	23: 6:21.0	11 4 19.74	5 57 10.8	1.007613	-1.326	1904.8	7.2	287.9	22.6
SEP 10	9970.5	23:14:14.1	11 11 31.31	5 12 2.3	1.007098	-1.349	1905.8	7.2	261.5	23.0
SEP 12	9972.5	23:22: 7.2	11 18 42.29	4 26 32.6	1.006581	-1.371	1906.8	7.2	235.1	23.4
SEP 14	9974.5	23:30: 0.3	11 25 52.88	3 40 44.1	1.006060	-1.391	1907.7	7.2	208.7	23.8
SEP 16	9976.5	23:37:53.5	11 33 3.25	2 54 39.3	1.005534	-1.409	1908.7	7.2	182.3	24.1
SEP 18	9978.5	23:45:46.6	11 40 13.57	2 8 21.0	1.005003	-1.426	1909.8	7.2	155.9	24.5
SEP 20	9980.5	23:53:39.7	11 47 23.98	1 21 51.8	1.004464	-1.440	1910.8	7.1	129.5	24.8
SEP 22	9982.5	0: 1:32.8	11 54 34.64	0 35 14.6	1.003917	-1.453	1911.8	7.1	103.1	25.0
SEP 24	9984.5	0: 9:25.9	12 1 45.69	0-11-28.0	1.003360	-1.464	1912.9	7.0	76.7	25.3
SEP 26	9986.5	0:17:19.0	12 8 57.28	0-58-13.0	1.002794	-1.474	1914.0	6.9	50.3	25.5
SEP 28	9988.5	0:25:12.1	12 16 9.54	-1-44-57.6	1.002219	-1.481	1915.1	6.9	23.9	25.7
SEP 30	9990.5	0:33: 5.2	12 23 22.61	-2-31-39.0	1.001636	-1.487	1916.2	6.8	357.5	25.9
OCT 2	9992.5	0:40:58.3	12 30 36.62	-3-18-14.2	1.001049	-1.492	1917.3	6.7	331.1	26.0
OCT 4	9994.5	0:48:51.5	12 37 51.73	-4 -4-40.4	1.000461	-1.495	1918.4	6.6	304.7	26.1
OCT 6	9996.5	0:56:44.6	12 45 8.10	-4-50-54.7	0.999874	-1.496	1919.5	6.5	278.3	26.2
OCT 8	9998.5	1: 4:37.7	12 52 25.92	-5-36-54.4	0.999293	-1.496	1920.7	6.4	251.9	26.3
OCT 10	10000.5	1:12:30.8	12 59 45.39	-6-22-36.8	0.998717	-1.493	1921.8	6.2	225.5	26.3
OCT 12	10002.5	1:20:23.9	13 7 6.69	-7 -7-59.2	0.998148	-1.490	1922.9	6.1	199.2	26.3
OCT 14	10004.5	1:28:17.0	13 14 30.01	-7-52-58.7	0.997584	-1.484	1924.0	6.0	172.8	26.3
OCT 16	10006.5	1:36:10.1	13 21 55.51	-8-37-32.2	0.997026	-1.476	1925.0	5.8	146.4	26.2
OCT 18	10008.5	1:44: 3.2	13 29 23.32	-9-21-36.8	0.996471	-1.466	1926.1	5.7	120.0	26.1
OCT 20	10010.5	1:51:56.3	13 36 53.59	-10 -5 -9.4	0.995919	-1.455	1927.2	5.5	93.6	26.0
OCT 22	10012.5	1:59:49.4	13 44 26.44	-10-48 -6.6	0.995368	-1.441	1928.2	5.3	67.2	25.8
OCT 24	10014.5	2: 7:42.6	13 52 1.99	-11-30-25.5	0.994817	-1.426	1929.3	5.2	40.9	25.6
OCT 26	10016.5	2:15:35.7	13 59 40.33	-12-12 -2.6	0.994267	-1.409	1930.4	5.0	14.5	25.4
OCT 28	10018.5	2:23:28.8	14 7 21.54	-12-52-54.8	0.993717	-1.390	1931.4	4.8	348.1	25.2
OCT 30	10020.5	2:31:21.9	14 15 5.67	-13-32-58.7	0.993171	-1.370	1932.5	4.6	321.7	24.9
NOV 1	10022.5	2:39:15.0	14 22 52.79	-14-12-11.0	0.992632	-1.349	1933.6	4.4	295.4	24.6
NOV 3	10024.5	2:47: 8.1	14 30 42.99	-14-50-28.4	0.992102	-1.325	1934.6	4.2	269.0	24.3
NOV 5	10026.5	2:55: 1.2	14 38 36.36	-15-27-47.8	0.991586	-1.301	1935.6	4.0	242.6	23.9
NOV 7	10028.5	3: 2:54.3	14 46 33.00	-16 -4 -6.0	0.991084	-1.275	1936.6	3.8	216.3	23.5
NOV 9	10030.5	3:10:47.4	14 54 32.99	-16-39-19.9	0.990597	-1.247	1937.5	3.6	189.9	23.0
NOV 11	10032.5	3:18:40.6	15 2 36.38	-17-13-26.5	0.990127	-1.218	1938.5	3.4	163.5	22.6
NOV 13	10034.5	3:26:33.7	15 10 43.22	-17-46-22.5	0.989672	-1.187	1939.3	3.1	137.2	22.1
NOV 15	10036.5	3:34:26.8	15 18 53.51	-18-18 -4.8	0.989231	-1.154	1940.2	2.9	110.8	21.6
NOV 17	10038.5	3:42:19.9	15 27 7.25	-18-48-30.2	0.988804	-1.120	1941.0	2.7	84.4	21.0
NOV 19	10040.5	3:50:13.0	15 35 24.42	-19-17-35.5	0.988388	-1.084	1941.9	2.4	58.1	20.4
NOV 21	10042.5	3:58: 6.1	15 43 44.96	-19-45-17.8	0.987983	-1.047	1942.7	2.2	31.7	19.8
NOV 23	10044.5	4: 5:59.2	15 52 8.80	-20-11-34.0	0.987586	-1.009	1943.4	1.9	5.3	19.1
NOV 25	10046.5	4:13:52.3	16 0 35.80	-20-36-21.4	0.987199	-0.969	1944.2	1.7	339.0	18.5
NOV 27	10048.5	4:21:45.4	16 9 5.80	-20-59-37.0	0.986821	-0.928	1944.9	1.4	312.6	17.8
NOV 29	10050.5	4:29:38.6	16 17 38.65	-21-21-18.0	0.986457	-0.886	1945.7	1.2	286.3	17.0
DEC 1	10052.5	4:37:31.7	16 26 14.19	-21-41-21.9	0.986108	-0.843	1946.4	0.9	259.9	16.3
DEC 3	10054.5	4:45:24.8	16 34 52.31	-21-59-46.4	0.985778	-0.799	1947.0	0.7	233.5	15.5
DEC 5	10056.5	4:53:17.9	16 43 32.85	-22-16-29.2	0.985470	-0.755	1947.6	0.4	207.2	14.7
DEC 7	10058.5	5: 1:11.0	16 52 15.64	-22-31-28.4	0.985183	-0.709	1948.2	0.2	180.8	13.9
DEC 9	10060.5	5: 9: 4.1	17 1 0.52	-22-44-42.1	0.984919	-0.663	1948.7	-0.1	154.5	13.1
DEC 11	10062.5	5:16:57.2	17 9 47.27	-22-56 -8.7	0.984679	-0.616	1949.2	-0.3	128.1	12.2
DEC 13	10064.5	5:24:50.3	17 18 35.69	-23 -5-46.6	0.984460	-0.567	1949.6	-0.6	101.8	11.3
DEC 15	10066.5	5:32:43.4	17 27 25.56	-23-13-34.4	0.984262	-0.518	1950.0	-0.9	75.4	10.4
DEC 17	10068.5	5:40:36.5	17 36 16.63	-23-19-31.1	0.984084	-0.468	1950.4	-1.1	49.1	9.5
DEC 19	10070.5	5:48:29.7	17 45 8.65	-23-23-35.8	0.983924	-0.418	1950.7	-1.4	22.7	8.6
DEC 21	10072.5	5:56:22.8	17 54 1.35	-23-25-48.0	0.983778	-0.367	1951.0	-1.6	356.4	7.7
DEC 23	10074.5	6: 4:15.9	18 2 54.41	-23-26 -7.4	0.983647	-0.315	1951.2	-1.9	330.0	6.7
DEC 25	10076.5	6:12: 9.0	18 11 47.48	-23-24-34.0	0.983529	-0.263	1951.5	-2.1	303.7	5.8
DEC 27	10078.5	6:20: 2.1	18 20 40.25	-23-21 -7.6	0.983427	-0.210	1951.7	-2.4	277.3	4.8
DEC 29	10080.5	6:27:55.2	18 29 32.44	-23-15-48.8	0.983343	-0.158	1951.8	-2.6	251.0	3.8
DEC 31	10082.5	6:35:48.3	18 38 23.78	-23 -8-38.0	0.983280	-0.105	1952.0	-2.8	224.6	2.9

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Geocentric Planetary Ephemeris

1996 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 2	10084.5	6:43:41.4	18 47 14.02	-22-59-36.1	0.983239	-0.053	1952.0	-3.1	198.3	1.9	
JAN 4	10086.5	6:51:34.5	18 56 2.95	-22-48-44.2	0.983223	0.000	1952.1	-3.3	172.0	0.9	
JAN 6	10088.5	6:59:27.7	19 4 50.33	-22-36 -3.5	0.983232	0.052	1952.0	-3.5	145.6	0.0	
JAN 8	10090.5	7: 7:20.8	19 13 35.95	-22-21-35.6	0.983266	0.105	1952.0	-3.8	119.3	-1.0	
JAN 10	10092.5	7:15:13.9	19 22 19.62	-22 -5-22.0	0.983325	0.157	1951.9	-4.0	93.0	-2.0	
JAN 12	10094.5	7:23: 7.0	19 31 1.16	-21-47-24.4	0.983408	0.209	1951.7	-4.2	66.6	-2.9	
JAN 14	10096.5	7:31: 0.1	19 39 40.42	-21-27-45.0	0.983513	0.261	1951.5	-4.4	40.3	-3.9	
JAN 16	10098.5	7:38:53.2	19 48 17.23	-21 -6-25.9	0.983639	0.313	1951.2	-4.6	13.9	-4.8	
JAN 18	10100.5	7:46:46.3	19 56 51.45	-20-43-29.6	0.983781	0.364	1951.0	-4.8	347.6	-5.7	
JAN 20	10102.5	7:54:39.4	20 5 22.90	-20-18-58.8	0.983939	0.416	1950.6	-5.0	321.3	-6.7	
JAN 22	10104.5	8: 2:32.5	20 13 51.41	-19-52-56.3	0.984110	0.467	1950.3	-5.2	294.9	-7.6	
JAN 24	10106.5	8:10:25.7	20 22 16.83	-19-25-24.9	0.984294	0.517	1949.9	-5.3	268.6	-8.5	
JAN 26	10108.5	8:18:18.8	20 30 39.06	-18-56-27.7	0.984494	0.566	1949.5	-5.5	242.3	-9.4	
JAN 28	10110.5	8:26:11.9	20 38 58.03	-18-26 -7.5	0.984711	0.614	1949.1	-5.7	215.9	-10.2	
JAN 30	10112.5	8:34: 5.0	20 47 13.70	-17-54-27.6	0.984948	0.662	1948.6	-5.8	189.6	-11.1	
FEB 1	10114.5	8:41:58.1	20 55 26.06	-17-21-30.9	0.985205	0.708	1948.1	-6.0	163.3	-11.9	
FEB 3	10116.5	8:49:51.2	21 3 35.09	-16-47-20.7	0.985483	0.754	1947.6	-6.1	136.9	-12.7	
FEB 5	10118.5	8:57:44.3	21 11 40.84	-16-12 -0.1	0.985784	0.799	1947.0	-6.3	110.6	-13.5	
FEB 7	10120.5	9: 5:37.4	21 19 43.33	-15-35-32.3	0.986107	0.842	1946.4	-6.4	84.3	-14.3	
FEB 9	10122.5	9:13:30.5	21 27 42.65	-14-58 -0.5	0.986451	0.885	1945.7	-6.5	57.9	-15.0	
FEB 11	10124.5	9:21:23.6	21 35 38.86	-14-19-27.8	0.986815	0.926	1945.0	-6.6	31.6	-15.8	
FEB 13	10126.5	9:29:16.8	21 43 32.05	-13-39-57.4	0.987197	0.967	1944.2	-6.7	5.3	-16.5	
FEB 15	10128.5	9:37: 9.9	21 51 22.32	-12-59-32.9	0.987593	1.006	1943.4	-6.8	338.9	-17.2	
FEB 17	10130.5	9:45: 3.0	21 59 9.71	-12-18-17.6	0.988001	1.044	1942.6	-6.9	312.6	-17.8	
FEB 19	10132.5	9:52:56.1	22 6 54.29	-11-36-14.9	0.988418	1.082	1941.8	-7.0	286.3	-18.5	
FEB 21	10134.5	10: 0:49.2	22 14 36.12	-10-53-28.5	0.988842	1.117	1941.0	-7.0	259.9	-19.1	
FEB 23	10136.5	10: 8:42.3	22 22 15.29	-10-10 -1.6	0.989275	1.152	1940.1	-7.1	233.6	-19.7	
FEB 25	10138.5	10:16:35.4	22 29 51.90	-9-25-57.7	0.989717	1.184	1939.3	-7.1	207.3	-20.3	
FEB 27	10140.5	10:24:28.5	22 37 26.08	-8-41-19.9	0.990170	1.216	1938.4	-7.2	180.9	-20.8	
FEB 29	10142.5	10:32:21.6	22 44 57.94	-7-56-11.6	0.990635	1.245	1937.5	-7.2	154.6	-21.4	
MAR 2	10144.5	10:40:14.8	22 52 27.65	-7-10-35.9	0.991114	1.273	1936.5	-7.2	128.2	-21.9	
MAR 4	10146.5	10:48: 7.9	22 59 55.36	-6-24-35.9	0.991607	1.299	1935.6	-7.2	101.9	-22.3	
MAR 6	10148.5	10:56: 1.0	23 7 21.24	-5-38-14.7	0.992115	1.324	1934.6	-7.2	75.5	-22.8	
MAR 8	10150.5	11: 3:54.1	23 14 45.47	-4-51-35.0	0.992637	1.346	1933.6	-7.2	49.2	-23.2	
MAR 10	10152.5	11:11:47.2	23 22 8.25	-4 -4-40.0	0.993172	1.368	1932.5	-7.2	22.8	-23.6	
MAR 12	10154.5	11:19:40.3	23 29 29.77	-3-17-32.5	0.993719	1.387	1931.4	-7.2	356.5	-24.0	
MAR 14	10156.5	11:27:33.4	23 36 50.21	-2-30-15.4	0.994273	1.406	1930.4	-7.2	330.1	-24.3	
MAR 16	10158.5	11:35:26.5	23 44 9.70	-1-42-51.9	0.994833	1.423	1929.3	-7.1	303.7	-24.6	
MAR 18	10160.5	11:43:19.6	23 51 28.39	0-55-25.1	0.995394	1.438	1928.2	-7.1	277.4	-24.9	
MAR 20	10162.5	11:51:12.8	23 58 46.42	0 -7-58.0	0.995955	1.451	1927.1	-7.0	251.0	-25.2	
MAR 22	10164.5	11:59: 5.9	0 6 3.92	0 39 26.2	0.996514	1.463	1926.0	-7.0	224.6	-25.4	
MAR 24	10166.5	12: 6:59.0	0 13 21.03	1 26 44.7	0.997073	1.473	1925.0	-6.9	198.3	-25.6	
MAR 26	10168.5	12:14:52.1	0 20 37.89	2 13 54.4	0.997632	1.481	1923.9	-6.8	171.9	-25.8	
MAR 28	10170.5	12:22:45.2	0 27 54.65	3 0 52.5	0.998192	1.487	1922.8	-6.7	145.5	-26.0	
MAR 30	10172.5	12:30:38.3	0 35 11.47	3 47 36.2	0.998756	1.491	1921.7	-6.6	119.1	-26.1	
APR 1	10174.5	12:38:31.4	0 42 28.50	4 34 2.5	0.999322	1.493	1920.6	-6.5	92.8	-26.2	
APR 3	10176.5	12:46:24.5	0 49 45.93	5 20 8.9	0.999894	1.493	1919.5	-6.4	66.4	-26.3	
APR 5	10178.5	12:54:17.6	0 57 3.93	6 5 52.7	1.000470	1.492	1918.4	-6.3	40.0	-26.3	
APR 7	10180.5	13: 2:10.7	1 4 22.68	6 51 11.3	1.001052	1.489	1917.3	-6.2	13.6	-26.3	
APR 9	10182.5	13:10: 3.9	1 11 42.38	7 36 2.2	1.001636	1.484	1916.2	-6.0	347.2	-26.3	
APR 11	10184.5	13:17:57.0	1 19 3.17	8 20 22.6	1.002220	1.477	1915.1	-5.9	320.8	-26.2	
APR 13	10186.5	13:25:50.1	1 26 25.19	9 4 9.9	1.002802	1.469	1914.0	-5.7	294.4	-26.1	
APR 15	10188.5	13:33:43.2	1 33 48.56	9 47 21.1	1.003377	1.460	1912.9	-5.6	268.0	-26.0	
APR 17	10190.5	13:41:36.3	1 41 13.39	10 29 53.6	1.003943	1.449	1911.8	-5.4	241.6	-25.9	
APR 19	10192.5	13:49:29.4	1 48 39.78	11 11 44.6	1.004499	1.436	1910.7	-5.3	215.2	-25.7	
APR 21	10194.5	13:57:22.5	1 56 7.79	11 52 51.3	1.005044	1.421	1909.7	-5.1	188.7	-25.5	
APR 23	10196.5	14: 5:15.6	2 3 37.52	12 33 11.0	1.005578	1.405	1908.7	-4.9	162.3	-25.3	
APR 25	10198.5	14:13: 8.7	2 11 9.03	13 12 40.9	1.006103	1.387	1907.7	-4.7	135.9	-25.0	
APR 27	10200.5	14:21: 1.9	2 18 42.41	13 51 18.4	1.006620	1.367	1906.7	-4.5	109.5	-24.8	
APR 29	10202.5	14:28:55.0	2 26 17.71	14 29 0.9	1.007130	1.346	1905.7	-4.3	83.0	-24.4	
MAY 1	10204.5	14:36:48.1	2 33 55.04	15 5 45.8	1.007635	1.323	1904.8	-4.1	56.6	-24.1	
MAY 3	10206.5	14:44:41.2	2 41 34.48	15 41 30.7	1.008135	1.298	1903.8	-3.9	30.2	-23.7	
MAY 5	10208.5	14:52:34.3	2 49 16.12	16 16 13.2	1.008630	1.272	1902.9	-3.7	3.7	-23.3	
MAY 7	10210.5	15: 0:27.4	2 57 0.04	16 49 51.0	1.009122	1.244	1902.0	-3.5	337.3	-22.9	
MAY 9	10212.5	15: 8:20.5	3 4 46.28	17 22 21.7	1.009606	1.215	1901.1	-3.3	310.9	-22.4	
MAY 11	10214.5	15:16:13.6	3 12 34.88	17 53 42.9	1.010081	1.185	1900.2	-3.1	284.4	-22.0	
MAY 13	10216.5	15:24: 6.7	3 20 25.84	18 23 52.3	1.010543	1.154	1899.3	-2.8	258.0	-21.4	
MAY 15	10218.5	15:31:59.9	3 28 19.15	18 52 47.4	1.010989	1.122	1898.5	-2.6	231.5	-20.9	
MAY 17	10220.5	15:39:53.0	3 36 14.78	19 20 26.0	1.011417	1.088	1897.6	-2.4	205.1	-20.3	
MAY 19	10222.5	15:47:46.1	3 44 12.65	19 46 46.0	1.011827	1.053	1896.9	-2.2	178.6	-19.8	
MAY 21	10224.5	15:55:39.2	3 52 12.69	20 11 45.1	1.012218	1.017	1896.1	-1.9	152.1	-19.1	
MAY 23	10226.5	16: 3:32.3	4 0 14.81	20 35 21.3	1.012591	0.980	1895.4	-1.7	125.7	-18.5	
MAY 25	10228.5	16:11:25.4	4 8 18.92	20 57 32.6	1.012947	0.941	1894.8	-1.5	99.2	-17.8	
MAY 27	10230.5	16:19:18.5	4 16 24.92	21 18 17.1	1.013287	0.902	1894.1	-1.2	72.8	-17.2	
MAY 29	10232.5	16:27:11.6	4 24 32.73	21 37 33.0	1.013613	0.861	1893.5	-1.0	46.3	-16.4	
MAY 31	10234.5	16:35: 4.7	4 32 42.24	21 55 18.8	1.013927	0.819	1892.9	-0.7	19.8	-15.7	
JUN 2	10236.5	16:42:57.8	4 40 53.38	22 11 33.1	1.014230	0.776	1892.4	-0.5	353.4	-15.0	
JUN 4	10238.5	16:50:51.0	4 49 6.05	22 26 14.4	1.014523	0.732	1891.8	-0.3	326.9	-14.2	
JUN 6	10240.5	16:58:44.1	4 57 20.14	22 39 21.6	1.014805	0.688	1891.3	0.0	300.4	-13.4	
JUN 8	10242.5	17: 6:37.2	5 5 35.51	22 50 53.6	1.015072	0.642	1890.8	0.2	274.0	-12.6	
JUN 10	10244.5	17:14:30.3	5 13 52.02	23 0 49.2	1.015323	0.597	1890.3	0.5	247.5	-11.8	
JUN 12	10246.5	17:22:23.4	5 22 9.52	23 9 7.6	1.015555	0.550	1889.9	0.7	221.0	-11.0	
JUN 14	10248.5	17:30:16.5	5 30 27.80	23 15 48.1	1.015764	0.504	1889.5	0.9	194.5	-10.1	
JUN 16	10250.5	17:38: 9.6	5 38 46.66	23 20 50.3	1.015951	0.457	1889.2	1.2	168.1	-9.3	
JUN 18	10252.5	17:46: 2.7	5 47 5.88	23 24 13.7	1.016115	0.409	1888.9	1.4	141.6	-8.4	
JUN 20	10254.5	17:53:55.8	5 55 25.24	23 25 58.0	1.016255	0.361	1888.6	1.7	115.1	-7.5	
JUN 22	10256.5	18: 1:49.0	6 3 44.52	23 26 3.2	1.016373	0.312	1888.4	1.9	88.6	-6.6	
JUN 24	10258.5	18: 9:42.1	6 12 3.51	23 24 29.3	1.016471	0.263	1888.2	2.1	62.2	-5.7	
JUN 26	10260.5	18:17:35.2	6 20 22.02	23 21 16.4	1.016549	0.213	1888.1	2.4	35.7	-4.8	
JUN 28	10262.5	18:25:28.3	6 28 39.89	23 16 25.1	1.016610	0.163	1888.0	2.6	9.2		

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ° ')	Dec (° ' '')	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	10266.5	18:41:14.5	6 45 13.01	23 1 49.2	1.016690	0.063	1887.8	3.0	316.3	-2.1	
JUL 4	10268.5	18:49: 7.6	6 53 27.98	22 52 6.2	1.016711	0.012	1887.8	3.2	289.8	-1.2	
JUL 6	10270.5	18:57: 0.7	7 1 41.72	22 40 47.5	1.016717	-0.038	1887.8	3.5	263.3	-0.3	
JUL 8	10272.5	19: 4:53.8	7 9 54.10	22 27 54.2	1.016707	-0.088	1887.8	3.7	236.9	0.6	
JUL 10	10274.5	19:12:47.0	7 18 4.98	22 13 27.6	1.016677	-0.138	1887.8	3.9	210.4	1.5	
JUL 12	10276.5	19:20:40.1	7 26 14.22	21 57 29.1	1.016625	-0.188	1887.9	4.1	183.9	2.4	
JUL 14	10278.5	19:28:33.2	7 34 21.67	21 40 0.2	1.016551	-0.237	1888.1	4.3	157.5	3.3	
JUL 16	10280.5	19:36:26.3	7 42 27.18	21 21 2.7	1.016453	-0.286	1888.2	4.5	131.0	4.2	
JUL 18	10282.5	19:44:19.4	7 50 30.62	21 0 38.2	1.016332	-0.335	1888.5	4.6	104.5	5.1	
JUL 20	10284.5	19:52:12.5	7 58 31.86	20 38 48.7	1.016187	-0.384	1888.7	4.8	78.1	5.9	
JUL 22	10286.5	20: 0: 5.6	8 6 30.82	20 15 36.0	1.016020	-0.432	1889.0	5.0	51.6	6.8	
JUL 24	10288.5	20: 7:58.7	8 14 27.41	19 51 2.1	1.015833	-0.480	1889.4	5.2	25.2	7.6	
JUL 26	10290.5	20:15:51.8	8 22 21.59	19 25 9.1	1.015629	-0.527	1889.8	5.3	358.7	8.5	
JUL 28	10292.5	20:23:45.0	8 30 13.31	18 57 59.1	1.015409	-0.574	1890.2	5.5	332.2	9.3	
JUL 30	10294.5	20:31:38.1	8 38 2.57	18 29 34.2	1.015176	-0.620	1890.6	5.7	305.8	10.1	
AUG 1	10296.5	20:39:31.2	8 45 49.39	17 59 56.7	1.014932	-0.666	1891.1	5.8	279.3	10.9	
AUG 3	10298.5	20:47:24.3	8 53 33.79	17 29 8.6	1.014677	-0.711	1891.5	5.9	252.9	11.7	
AUG 5	10300.5	20:55:17.4	9 1 15.85	16 57 12.0	1.014409	-0.755	1892.0	6.1	226.4	12.5	
AUG 7	10302.5	21: 3:10.5	9 8 55.59	16 24 9.4	1.014126	-0.798	1892.6	6.2	200.0	13.2	
AUG 9	10304.5	21:11: 3.6	9 16 33.06	15 50 3.2	1.013826	-0.840	1893.1	6.3	173.5	14.0	
AUG 11	10306.5	21:18:56.7	9 24 8.27	15 14 55.9	1.013507	-0.881	1893.7	6.4	147.1	14.7	
AUG 13	10308.5	21:26:49.8	9 31 41.25	14 38 50.0	1.013168	-0.921	1894.4	6.6	120.7	15.4	
AUG 15	10310.5	21:34:42.9	9 39 12.05	14 1 48.2	1.012809	-0.960	1895.0	6.7	94.2	16.1	
AUG 17	10312.5	21:42:36.1	9 46 40.71	13 23 53.0	1.012431	-0.998	1895.7	6.8	67.8	16.8	
AUG 19	10314.5	21:50:29.2	9 54 7.29	12 45 7.0	1.012034	-1.035	1896.5	6.8	41.4	17.4	
AUG 21	10316.5	21:58:22.3	10 1 31.88	12 5 32.7	1.011619	-1.071	1897.3	6.9	14.9	18.0	
AUG 23	10318.5	22: 6:15.4	10 8 54.55	11 25 12.8	1.011189	-1.105	1898.1	7.0	348.5	18.6	
AUG 25	10320.5	22:14: 8.5	10 16 15.40	10 44 9.8	1.010748	-1.139	1898.9	7.0	322.1	19.2	
AUG 27	10322.5	22:22: 1.6	10 23 34.56	10 2 26.4	1.010297	-1.171	1899.7	7.1	295.6	19.8	
AUG 29	10324.5	22:29:54.7	10 30 52.16	9 20 4.8	1.009840	-1.203	1900.6	7.1	269.2	20.4	
AUG 31	10326.5	22:37:47.8	10 38 8.37	8 37 7.6	1.009378	-1.233	1901.5	7.2	242.8	20.9	
SEP 2	10328.5	22:45:40.9	10 45 23.36	7 53 37.0	1.008910	-1.261	1902.4	7.2	216.4	21.4	
SEP 4	10330.5	22:53:34.1	10 52 37.31	7 9 35.4	1.008434	-1.288	1903.3	7.2	190.0	21.9	
SEP 6	10332.5	23: 1:27.2	10 59 50.36	6 25 5.6	1.007949	-1.313	1904.2	7.2	163.5	22.3	
SEP 8	10334.5	23: 9:20.3	11 7 2.64	5 40 10.2	1.007453	-1.337	1905.1	7.2	137.1	22.8	
SEP 10	10336.5	23:17:13.4	11 14 14.28	4 54 51.8	1.006946	-1.358	1906.1	7.2	110.7	23.2	
SEP 12	10338.5	23:25: 6.5	11 21 25.42	4 9 13.2	1.006426	-1.379	1907.1	7.2	84.3	23.6	
SEP 14	10340.5	23:32:59.6	11 28 36.18	3 23 17.1	1.005893	-1.397	1908.1	7.2	57.9	23.9	
SEP 16	10342.5	23:40:52.7	11 35 46.71	2 37 6.1	1.005348	-1.415	1909.1	7.2	31.5	24.3	
SEP 18	10344.5	23:48:45.8	11 42 57.14	1 50 43.1	1.004792	-1.430	1910.2	7.1	5.1	24.6	
SEP 20	10346.5	23:56:38.9	11 50 7.61	1 4 10.8	1.004228	-1.444	1911.2	7.1	338.7	24.9	
SEP 22	10348.5	0: 4:32.1	11 57 18.26	0 17 32.0	1.003657	-1.457	1912.3	7.0	312.3	25.1	
SEP 24	10350.5	0:12:25.2	12 4 29.26	0-29-10.6	1.003084	-1.468	1913.4	7.0	285.9	25.4	
SEP 26	10352.5	0:20:18.3	12 11 40.77	-1-15-54.2	1.002511	-1.477	1914.5	6.9	259.5	25.6	
SEP 28	10354.5	0:28:11.4	12 18 53.00	-2 -2-36.5	1.001942	-1.485	1915.6	6.8	233.1	25.8	
SEP 30	10356.5	0:36: 4.5	12 26 6.16	-2-49-14.7	1.001375	-1.491	1916.7	6.7	206.7	25.9	
OCT 2	10358.5	0:43:57.6	12 33 20.46	-3-35-46.4	1.000811	-1.495	1917.8	6.7	180.3	26.1	
OCT 4	10360.5	0:51:50.7	12 40 36.06	-4-22 -8.6	1.000247	-1.497	1918.8	6.6	153.9	26.2	
OCT 6	10362.5	0:59:43.8	12 47 53.12	-5 -8-18.5	0.999684	-1.498	1919.9	6.4	127.6	26.2	
OCT 8	10364.5	1: 7:36.9	12 55 11.81	-5-54-13.3	0.999120	-1.496	1921.0	6.3	101.2	26.3	
OCT 10	10366.5	1:15:30.0	13 2 32.25	-6-39-49.8	0.998553	-1.492	1922.1	6.2	74.8	26.3	
OCT 12	10368.5	1:23:23.2	13 9 54.60	-7-25 -5.1	0.997983	-1.487	1923.2	6.1	48.4	26.3	
OCT 14	10370.5	1:31:16.3	13 17 18.98	-8 -9-56.2	0.997410	-1.480	1924.3	5.9	22.0	26.2	
OCT 16	10372.5	1:39: 9.4	13 24 45.52	-8-54-19.8	0.996834	-1.471	1925.4	5.8	355.6	26.2	
OCT 18	10374.5	1:47: 2.5	13 32 14.32	-9-38-12.9	0.996258	-1.461	1926.5	5.6	329.3	26.1	
OCT 20	10376.5	1:54:55.6	13 39 45.50	-10-21-32.2	0.995683	-1.449	1927.6	5.5	302.9	25.9	
OCT 22	10378.5	2: 2:48.7	13 47 19.16	-11 -4-14.6	0.995114	-1.435	1928.7	5.3	276.5	25.8	
OCT 24	10380.5	2:10:41.8	13 54 55.44	-11-46-16.8	0.994553	-1.420	1929.8	5.1	250.1	25.6	
OCT 26	10382.5	2:18:34.9	14 2 34.50	-12-27-35.9	0.994004	-1.403	1930.9	4.9	223.7	25.3	
OCT 28	10384.5	2:26:28.0	14 10 16.47	-13 -8 -8.9	0.993467	-1.384	1931.9	4.7	197.4	25.1	
OCT 30	10386.5	2:34:21.2	14 18 1.51	-13-47-52.7	0.992942	-1.364	1933.0	4.5	171.0	24.8	
NOV 1	10388.5	2:42:14.3	14 25 49.71	-14-26-44.2	0.992430	-1.342	1933.9	4.3	144.6	24.5	
NOV 3	10390.5	2:50: 7.4	14 33 41.16	-15 -4-40.1	0.991929	-1.318	1934.9	4.1	118.3	24.1	
NOV 5	10392.5	2:58: 0.5	14 41 35.94	-15-41-37.2	0.991437	-1.293	1935.9	3.9	91.9	23.7	
NOV 7	10394.5	3: 5:53.6	14 49 34.10	-16-17-32.2	0.990954	-1.265	1936.8	3.7	65.5	23.3	
NOV 9	10396.5	3:13:46.7	14 57 35.68	-16-52-21.9	0.990479	-1.236	1937.8	3.5	39.1	22.9	
NOV 11	10398.5	3:21:39.8	15 5 40.68	-17-26 -2.9	0.990010	-1.206	1938.7	3.3	12.8	22.4	
NOV 13	10400.5	3:29:32.9	15 13 49.09	-17-58-32.1	0.989547	-1.174	1939.6	3.0	346.4	21.9	
NOV 15	10402.5	3:37:26.0	15 22 0.88	-18-29-46.2	0.989091	-1.140	1940.5	2.8	320.0	21.3	
NOV 17	10404.5	3:45:19.2	15 30 15.96	-18-59-41.9	0.988644	-1.105	1941.4	2.6	293.7	20.8	
NOV 19	10406.5	3:53:12.3	15 38 34.29	-19-28-16.1	0.988210	-1.069	1942.2	2.3	267.3	20.2	
NOV 21	10408.5	4: 1: 5.4	15 46 55.81	-19-55-25.7	0.987791	-1.032	1943.0	2.1	241.0	19.5	
NOV 23	10410.5	4: 8:58.5	15 55 20.48	-20-21 -7.9	0.987390	-0.994	1943.8	1.8	214.6	18.9	
NOV 25	10412.5	4:16:51.6	16 3 48.24	-20-45-20.0	0.987009	-0.954	1944.6	1.6	188.2	18.2	
NOV 27	10414.5	4:24:44.7	16 12 19.02	-21 -7-59.4	0.986650	-0.914	1945.3	1.3	161.9	17.5	
NOV 29	10416.5	4:32:37.8	16 20 52.71	-21-29 -3.4	0.986311	-0.872	1945.9	1.1	135.5	16.8	
DEC 1	10418.5	4:40:30.9	16 29 29.19	-21-48-29.7	0.985992	-0.829	1946.6	0.8	109.2	16.0	
DEC 3	10420.5	4:48:24.0	16 38 8.31	-22 -6-15.9	0.985692	-0.785	1947.2	0.6	82.8	15.2	
DEC 5	10422.5	4:56:17.1	16 46 49.90	-22-22-19.7	0.985410	-0.739	1947.7	0.3	56.4	14.4	
DEC 7	10424.5	5: 4:10.3	16 55 33.77	-22-36-39.3	0.985144	-0.693	1948.3	0.1	30.1	13.6	
DEC 9	10426.5	5:12: 3.4	17 4 19.71	-22-49-12.8	0.984892	-0.646	1948.8	-0.2	3.7	12.7	
DEC 11	10428.5	5:19:56.5	17 13 7.47	-22-59-58.6	0.984653	-0.597	1949.2	-0.4	337.4	11.9	
DEC 13	10430.5	5:27:49.6	17 21 56.75	-23 -8-55.2	0.984427	-0.548	1949.7	-0.7	311.0	11.0	
DEC 15	10432.5	5:35:42.7	17 30 47.26	-23-16 -1.5	0.984215	-0.498	1950.1	-1.0	284.7	10.1	
DEC 17	10434.5	5:43:35.8	17 39 38.71	-23-21-16.3	0.984019	-0.448	1950.5	-1.2	258.3	9.2	
DEC 19	10436.5	5:51:28.9	17 48 30.82	-23-24-38.9	0.983842	-0.398	1950.8	-1.5	232.0	8.2	
DEC 21	10438.5	5:59:22.0	17 57 23.35	-23-26 -8.7	0.983687	-0.347	1951.1	-1.7	205.6	7.3	
DEC 23	10440.5	6: 7:15.1	18 6 16.06	-23-25-45.5	0.983555	-0.296	1951.4	-2.0	179.3	6.4	
DEC 25	10442.5	6:15: 8.3	18 15 8.68	-23-23-29.4	0.983448	-0.244	1951.6	-2.2	152.9	5.4	
DEC 27	10444.5	6:23: 1.4	18 24 0.97	-23-19-20.4	0.983367	-0.192	1951.8	-2.4	126.6	4.4	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 2	10450.5	6:46:40.7	18 50 33.44	-22-55-42.1	0.983267	-0.035	1952.0	-3.2	47.6	1.5	
JAN 4	10452.5	6:54:33.8	18 59 21.99	-22-44 -8.4	0.983278	0.018	1952.0	-3.4	21.2	0.6	
JAN 6	10454.5	7: 2:26.9	19 8 9.02	-22-30-46.4	0.983306	0.071	1951.9	-3.6	354.9	-0.4	
JAN 8	10456.5	7:10:20.0	19 16 54.28	-22-15-37.6	0.983352	0.124	1951.8	-3.8	328.6	-1.4	
JAN 10	10458.5	7:18:13.1	19 25 37.53	-21-58-44.0	0.983411	0.176	1951.7	-4.1	302.2	-2.3	
JAN 12	10460.5	7:26: 6.3	19 34 18.49	-21-40 -7.5	0.983485	0.229	1951.5	-4.3	275.9	-3.3	
JAN 14	10462.5	7:33:59.4	19 42 56.95	-21-19-50.3	0.983574	0.281	1951.4	-4.5	249.5	-4.2	
JAN 16	10464.5	7:41:52.5	19 51 32.73	-20-57-54.8	0.983681	0.333	1951.2	-4.7	223.2	-5.2	
JAN 18	10466.5	7:49:45.6	20 0 5.69	-20-34-23.3	0.983809	0.384	1950.9	-4.9	196.9	-6.1	
JAN 20	10468.5	7:57:38.7	20 8 35.72	-20 -9-18.4	0.983958	0.435	1950.6	-5.1	170.5	-7.0	
JAN 22	10470.5	8: 5:31.8	20 17 2.71	-19-42-42.9	0.984131	0.484	1950.3	-5.2	144.2	-7.9	
JAN 24	10472.5	8:13:24.9	20 25 26.61	-19-14-39.6	0.984328	0.533	1949.9	-5.4	117.9	-8.8	
JAN 26	10474.5	8:21:18.0	20 33 47.36	-18-45-11.3	0.984549	0.582	1949.4	-5.6	91.5	-9.7	
JAN 28	10476.5	8:29:11.1	20 42 4.92	-18-14-21.0	0.984793	0.630	1949.0	-5.7	65.2	-10.5	
JAN 30	10478.5	8:37: 4.2	20 50 19.30	-17-42-11.6	0.985058	0.677	1948.4	-5.9	38.9	-11.4	
FEB 1	10480.5	8:44:57.4	20 58 30.48	-17 -8-46.2	0.985344	0.723	1947.9	-6.0	12.5	-12.2	
FEB 3	10482.5	8:52:50.5	21 6 38.48	-16-34 -8.1	0.985648	0.769	1947.3	-6.2	346.2	-13.0	
FEB 5	10484.5	9: 0:43.6	21 14 43.31	-15-58-20.5	0.985966	0.813	1946.6	-6.3	319.9	-13.8	
FEB 7	10486.5	9: 8:36.7	21 22 44.95	-15-21-26.9	0.986297	0.857	1946.0	-6.4	293.5	-14.6	
FEB 9	10488.5	9:16:29.8	21 30 43.40	-14-43-30.7	0.986638	0.900	1945.3	-6.5	267.2	-15.3	
FEB 11	10490.5	9:24:22.9	21 38 38.67	-14 -4-35.3	0.986989	0.942	1944.6	-6.6	240.9	-16.0	
FEB 13	10492.5	9:32:16.0	21 46 30.81	-13-24-44.2	0.987352	0.982	1943.9	-6.7	214.5	-16.7	
FEB 15	10494.5	9:40: 9.1	21 54 19.89	-12-44 -0.7	0.987728	1.021	1943.2	-6.8	188.2	-17.4	
FEB 17	10496.5	9:48: 2.2	22 2 6.00	-12 -2-28.2	0.988120	1.058	1942.4	-6.9	161.9	-18.1	
FEB 19	10498.5	9:55:55.4	22 9 49.23	-11-20-10.0	0.988528	1.094	1941.6	-7.0	135.5	-18.7	
FEB 21	10500.5	10: 3:48.5	22 17 29.73	-10-37 -9.4	0.988954	1.129	1940.8	-7.1	109.2	-19.3	
FEB 23	10502.5	10:11:41.6	22 25 7.62	-9-53-29.4	0.989398	1.162	1939.9	-7.1	82.9	-19.9	
FEB 25	10504.5	10:19:34.7	22 32 43.05	-9 -9-13.3	0.989860	1.194	1939.0	-7.2	56.5	-20.5	
FEB 27	10506.5	10:27:27.8	22 40 16.20	-8-24-24.1	0.990338	1.224	1938.0	-7.2	30.2	-21.0	
MAR 1	10508.5	10:35:20.9	22 47 47.22	-7-39 -5.0	0.990830	1.253	1937.1	-7.2	3.8	-21.5	
MAR 3	10510.5	10:43:14.0	22 55 16.27	-6-53-19.1	0.991335	1.280	1936.1	-7.2	337.5	-22.0	
MAR 5	10512.5	10:51: 7.1	23 2 43.51	-6 -7 -9.4	0.991850	1.306	1935.1	-7.2	311.1	-22.5	
MAR 7	10514.5	10:59: 0.2	23 10 9.07	-5-20-39.4	0.992370	1.331	1934.1	-7.2	284.8	-22.9	
MAR 9	10516.5	11: 6:53.4	23 17 33.06	-4-33-52.1	0.992895	1.354	1933.1	-7.2	258.4	-23.4	
MAR 11	10518.5	11:14:46.5	23 24 55.62	-3-46-50.9	0.993421	1.375	1932.0	-7.2	232.1	-23.7	
MAR 13	10520.5	11:22:39.6	23 32 16.87	-2-59-38.8	0.993949	1.395	1931.0	-7.2	205.7	-24.1	
MAR 15	10522.5	11:30:32.7	23 39 36.96	-2-12-19.0	0.994481	1.412	1930.0	-7.2	179.4	-24.4	
MAR 17	10524.5	11:38:25.8	23 46 56.02	-1-24-54.5	0.995018	1.428	1928.9	-7.1	153.0	-24.8	
MAR 19	10526.5	11:46:18.9	23 54 14.23	0-37-28.3	0.995561	1.442	1927.9	-7.1	126.6	-25.0	
MAR 21	10528.5	11:54:12.0	0 1 31.76	0 9 56.6	0.996113	1.455	1926.8	-7.0	100.3	-25.3	
MAR 23	10530.5	12: 2: 5.1	0 8 48.78	0 57 17.5	0.996672	1.465	1925.7	-6.9	73.9	-25.5	
MAR 25	10532.5	12: 9:58.2	0 16 5.49	1 44 31.6	0.997241	1.473	1924.6	-6.9	47.5	-25.7	
MAR 27	10534.5	12:17:51.3	0 23 22.07	2 31 36.3	0.997817	1.480	1923.5	-6.8	21.1	-25.9	
MAR 29	10536.5	12:25:44.5	0 30 38.73	3 18 28.7	0.998399	1.485	1922.4	-6.7	354.8	-26.0	
MAR 31	10538.5	12:33:37.6	0 37 55.64	4 5 6.2	0.998987	1.489	1921.3	-6.6	328.4	-26.1	
APR 2	10540.5	12:41:30.7	0 45 12.96	4 51 26.1	0.999576	1.490	1920.1	-6.5	302.0	-26.2	
APR 4	10542.5	12:49:23.8	0 52 30.85	5 37 25.5	1.000164	1.491	1919.0	-6.4	275.6	-26.3	
APR 6	10544.5	12:57:16.9	0 59 49.44	6 23 1.5	1.000747	1.489	1917.9	-6.2	249.2	-26.3	
APR 8	10546.5	13: 5:10.0	1 7 8.84	7 8 11.4	1.001323	1.486	1916.8	-6.1	222.8	-26.3	
APR 10	10548.5	13:13: 3.1	1 14 29.18	7 52 52.1	1.001891	1.481	1915.7	-6.0	196.4	-26.3	
APR 12	10550.5	13:20:56.2	1 21 50.55	8 37 0.9	1.002452	1.475	1914.6	-5.8	170.0	-26.2	
APR 14	10552.5	13:28:49.3	1 29 13.07	9 20 35.0	1.003007	1.466	1913.6	-5.7	143.6	-26.1	
APR 16	10554.5	13:36:42.5	1 36 36.85	10 3 31.5	1.003557	1.456	1912.5	-5.5	117.2	-26.0	
APR 18	10556.5	13:44:35.6	1 44 2.02	10 45 47.7	1.004104	1.443	1911.5	-5.4	90.8	-25.8	
APR 20	10558.5	13:52:28.7	1 51 28.69	11 27 21.1	1.004649	1.429	1910.4	-5.2	64.4	-25.7	
APR 22	10560.5	14: 0:21.8	1 58 57.02	12 8 9.0	1.005192	1.413	1909.4	-5.0	38.0	-25.4	
APR 24	10562.5	14: 8:14.9	2 6 27.12	12 48 9.0	1.005734	1.396	1908.4	-4.8	11.6	-25.2	
APR 26	10564.5	14:16: 8.0	2 13 59.13	13 27 18.5	1.006274	1.377	1907.3	-4.6	345.1	-24.9	
APR 28	10566.5	14:24: 1.1	2 21 33.15	14 5 35.2	1.006810	1.356	1906.3	-4.5	318.7	-24.6	
APR 30	10568.5	14:31:54.2	2 29 9.29	14 42 56.3	1.007341	1.334	1905.3	-4.3	292.3	-24.3	
MAY 2	10570.5	14:39:47.3	2 36 47.61	15 19 19.5	1.007864	1.311	1904.3	-4.1	265.8	-24.0	
MAY 4	10572.5	14:47:40.5	2 44 28.16	15 54 42.0	1.008374	1.286	1903.4	-3.9	239.4	-23.6	
MAY 6	10574.5	14:55:33.6	2 52 10.99	16 29 1.4	1.008869	1.260	1902.4	-3.6	213.0	-23.2	
MAY 8	10576.5	15: 3:26.7	2 59 56.09	17 2 15.2	1.009349	1.233	1901.5	-3.4	186.5	-22.7	
MAY 10	10578.5	15:11:19.8	3 7 43.45	17 34 20.8	1.009811	1.204	1900.7	-3.2	160.1	-22.3	
MAY 12	10580.5	15:19:12.9	3 15 33.06	18 5 15.7	1.010258	1.174	1899.8	-3.0	133.6	-21.8	
MAY 14	10582.5	15:27: 6.0	3 23 24.88	18 34 57.4	1.010690	1.142	1899.0	-2.8	107.2	-21.2	
MAY 16	10584.5	15:34:59.1	3 31 18.89	19 3 23.8	1.011110	1.109	1898.2	-2.5	80.7	-20.7	
MAY 18	10586.5	15:42:52.2	3 39 15.09	19 30 32.5	1.011517	1.074	1897.5	-2.3	54.3	-20.1	
MAY 20	10588.5	15:50:45.3	3 47 13.45	19 56 21.5	1.011915	1.038	1896.7	-2.1	27.8	-19.5	
MAY 22	10590.5	15:58:38.4	3 55 13.95	20 20 48.7	1.012303	1.001	1896.0	-1.8	1.4	-18.9	
MAY 24	10592.5	16: 6:31.6	4 3 16.56	20 43 52.3	1.012682	0.963	1895.3	-1.6	334.9	-18.3	
MAY 26	10594.5	16:14:24.7	4 11 21.23	21 5 30.5	1.013051	0.923	1894.6	-1.4	308.4	-17.6	
MAY 28	10596.5	16:22:17.8	4 19 27.89	21 25 41.5	1.013410	0.883	1893.9	-1.1	282.0	-16.9	
MAY 30	10598.5	16:30:10.9	4 27 36.46	21 44 23.7	1.013754	0.842	1893.3	-0.9	255.5	-16.2	
JUN 1	10600.5	16:38: 4.0	4 35 46.85	22 1 35.3	1.014082	0.800	1892.7	-0.7	229.0	-15.4	
JUN 3	10602.5	16:45:57.1	4 43 58.91	22 17 15.0	1.014390	0.757	1892.1	-0.4	202.6	-14.7	
JUN 5	10604.5	16:53:50.2	4 52 12.49	22 31 21.3	1.014676	0.714	1891.6	-0.2	176.1	-13.9	
JUN 7	10606.5	17: 1:43.3	5 0 27.40	22 43 53.2	1.014940	0.670	1891.1	0.1	149.6	-13.1	
JUN 9	10608.5	17: 9:36.4	5 8 43.45	22 54 49.3	1.015182	0.625	1890.6	0.3	123.2	-12.3	
JUN 11	10610.5	17:17:29.6	5 17 0.43	23 4 8.8	1.015402	0.579	1890.2	0.6	96.7	-11.5	
JUN 13	10612.5	17:25:22.7	5 25 18.17	23 11 50.7	1.015603	0.533	1889.8	0.8	70.2	-10.6	
JUN 15	10614.5	17:33:15.8	5 33 36.49	23 17 54.4	1.015786	0.486	1889.5	1.0	43.8	-9.8	
JUN 17	10616.5	17:41: 8.9	5 41 55.21	23 22 19.4	1.015952	0.438	1889.2	1.3	17.3	-8.9	
JUN 19	10618.5	17:49: 2.0	5 50 14.17	23 25 5.3	1.016103	0.389	1888.9	1.5	350.8	-8.1	
JUN 21	10620.5	17:56:55.1	5 58 33.20	23 26 12.1	1.016241	0.340	1888.6	1.7	324.3	-7.2	
JUN 23	10622.5	18: 4:48.2	6 6 52.14	23 25 39.7	1.016366	0.291	1888.4	2.0	297.9	-6.3	
JUN 25	10624.5	18:12:41.3	6 15 10.84	23 23 28.3	1.016478	0.241	1888.2	2.2	271.4	-5.4	
JUN 27	10626.5	18:20:34.4	6 23 29.13	23 19 38.0	1.016575	0.191	1888.0	2.4	244.9	-4.5	
JUN 29	10628.5	18:28:27.6	6 31 46.86	23 14 9.2	1.016653	0.142	1887.9	2.7	218.4	-3.6	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 1	10630.5	18:36:20.7	6 40 3.84	23 7 2.7	1.016710	0.092	1887.8	2.9	192.0	-2.7	
JUL 3	10632.5	18:44:13.8	6 48 19.88	22 58 19.1	1.016744	0.042	1887.7	3.1	165.5	-1.8	
JUL 5	10634.5	18:52:6.9	6 56 34.78	22 47 59.5	1.016753	-0.008	1887.7	3.3	139.0	-0.9	
JUL 7	10636.5	18:59:60.0	7 4 48.32	22 36 4.8	1.016739	-0.057	1887.7	3.5	112.6	0.0	
JUL 9	10638.5	19: 7:53.1	7 13 0.33	22 22 36.3	1.016701	-0.107	1887.8	3.7	86.1	0.9	
JUL 11	10640.5	19:15:46.2	7 21 10.65	22 7 35.2	1.016640	-0.157	1887.9	3.9	59.6	1.8	
JUL 13	10642.5	19:23:39.3	7 29 19.12	21 51 2.9	1.016559	-0.207	1888.0	4.1	33.1	2.7	
JUL 15	10644.5	19:31:32.4	7 37 25.64	21 33 0.9	1.016458	-0.256	1888.2	4.3	6.7	3.6	
JUL 17	10646.5	19:39:25.6	7 45 30.09	21 13 31.0	1.016341	-0.306	1888.5	4.5	340.2	4.5	
JUL 19	10648.5	19:47:18.7	7 53 32.39	20 52 34.8	1.016210	-0.355	1888.7	4.7	313.8	5.4	
JUL 21	10650.5	19:55:11.8	8 1 32.49	20 30 14.1	1.016066	-0.404	1889.0	4.9	287.3	6.3	
JUL 23	10652.5	20: 3: 4.9	8 9 30.34	20 6 30.9	1.015909	-0.453	1889.3	5.1	260.8	7.1	
JUL 25	10654.5	20:10:58.0	8 17 25.92	19 41 26.9	1.015739	-0.500	1889.6	5.2	234.4	8.0	
JUL 27	10656.5	20:18:51.1	8 25 19.22	19 15 4.2	1.015553	-0.548	1889.9	5.4	207.9	8.8	
JUL 29	10658.5	20:26:44.2	8 33 10.21	18 47 24.9	1.015349	-0.594	1890.3	5.6	181.5	9.6	
JUL 31	10660.5	20:34:37.3	8 40 58.86	18 18 31.2	1.015125	-0.639	1890.7	5.7	155.0	10.4	
AUG 2	10662.5	20:42:30.4	8 48 45.13	17 48 25.6	1.014880	-0.684	1891.2	5.9	128.6	11.2	
AUG 4	10664.5	20:50:23.5	8 56 28.99	17 17 10.5	1.014612	-0.728	1891.7	6.0	102.1	12.0	
AUG 6	10666.5	20:58:16.7	9 4 10.42	16 44 48.1	1.014323	-0.771	1892.2	6.1	75.7	12.8	
AUG 8	10668.5	21: 6: 9.8	9 11 49.42	16 11 21.1	1.014013	-0.814	1892.8	6.3	49.2	13.5	
AUG 10	10670.5	21:14: 2.9	9 19 26.03	15 36 51.7	1.013683	-0.856	1893.4	6.4	22.8	14.2	
AUG 12	10672.5	21:21:56.0	9 27 0.28	15 1 22.5	1.013336	-0.896	1894.0	6.5	356.3	15.0	
AUG 14	10674.5	21:29:49.1	9 34 32.22	14 24 56.1	1.012974	-0.936	1894.7	6.6	329.9	15.7	
AUG 16	10676.5	21:37:42.2	9 42 1.93	13 47 34.8	1.012600	-0.975	1895.4	6.7	303.5	16.3	
AUG 18	10678.5	21:45:35.3	9 49 29.50	13 9 21.2	1.012217	-1.013	1896.1	6.8	277.0	17.0	
AUG 20	10680.5	21:53:28.4	9 56 55.04	12 30 17.7	1.011825	-1.051	1896.9	6.9	250.6	17.6	
AUG 22	10682.5	22: 1:21.5	10 4 18.69	11 50 26.5	1.011425	-1.086	1897.6	6.9	224.2	18.3	
AUG 24	10684.5	22: 9:14.7	10 11 40.60	11 9 50.1	1.011016	-1.121	1898.4	7.0	197.7	18.9	
AUG 26	10686.5	22:17: 7.8	10 19 0.89	10 28 30.9	1.010596	-1.154	1899.2	7.1	171.3	19.5	
AUG 28	10688.5	22:25: 0.9	10 26 19.68	9 46 31.6	1.010162	-1.185	1900.0	7.1	144.9	20.0	
AUG 30	10690.5	22:32:54.0	10 33 37.06	9 3 54.8	1.009713	-1.215	1900.8	7.2	118.5	20.6	
SEP 1	10692.5	22:40:47.1	10 40 53.13	8 20 43.2	1.009249	-1.244	1901.7	7.2	92.0	21.1	
SEP 3	10694.5	22:48:40.2	10 48 8.00	7 36 59.5	1.008769	-1.271	1902.6	7.2	65.6	21.6	
SEP 5	10696.5	22:56:33.3	10 55 21.78	6 52 46.2	1.008273	-1.297	1903.6	7.2	39.2	22.0	
SEP 7	10698.5	23: 4:26.4	11 2 34.61	6 8 6.1	1.007764	-1.321	1904.5	7.2	12.8	22.5	
SEP 9	10700.5	23:12:19.5	11 9 46.61	5 23 1.8	1.007242	-1.344	1905.5	7.2	346.4	22.9	
SEP 11	10702.5	23:20:12.7	11 16 57.92	4 37 36.1	1.006711	-1.366	1906.5	7.2	320.0	23.3	
SEP 13	10704.5	23:28: 5.8	11 24 8.68	3 51 51.5	1.006172	-1.386	1907.5	7.2	293.6	23.7	
SEP 15	10706.5	23:35:58.9	11 31 19.05	3 5 50.8	1.005630	-1.405	1908.6	7.2	267.2	24.1	
SEP 17	10708.5	23:43:52.0	11 38 29.20	2 19 36.5	1.005086	-1.422	1909.6	7.2	240.7	24.4	
SEP 19	10710.5	23:51:45.1	11 45 39.35	1 33 11.0	1.004543	-1.438	1910.6	7.1	214.3	24.7	
SEP 21	10712.5	23:59:38.2	11 52 49.70	0 46 36.7	1.003999	-1.451	1911.7	7.1	187.9	25.0	
SEP 23	10714.5	0: 7:31.3	12 0 0.46	0 0 -3.8	1.003454	-1.463	1912.7	7.0	161.5	25.2	
SEP 25	10716.5	0:15:24.4	12 7 11.76	0-46-47.7	1.002905	-1.473	1913.8	7.0	135.2	25.5	
SEP 27	10718.5	0:23:17.5	12 14 23.77	-1-33-32.4	1.002350	-1.482	1914.8	6.9	108.8	25.7	
SEP 29	10720.5	0:31:10.6	12 21 36.64	-2-20-14.8	1.001789	-1.488	1915.9	6.8	82.4	25.8	
OCT 1	10722.5	0:39: 3.8	12 28 50.51	-3 -6-52.3	1.001222	-1.493	1917.0	6.7	56.0	26.0	
OCT 3	10724.5	0:46:56.9	12 36 5.52	-3-53-21.8	1.000648	-1.496	1918.1	6.6	29.6	26.1	
OCT 5	10726.5	0:54:50.0	12 43 21.81	-4-39-40.5	1.000068	-1.497	1919.2	6.5	3.2	26.2	
OCT 7	10728.5	1: 2:43.1	12 50 39.54	-5-25-45.4	0.999484	-1.496	1920.3	6.4	336.8	26.3	
OCT 9	10730.5	1:10:36.2	12 57 58.82	-6-11-33.5	0.998897	-1.494	1921.4	6.3	310.4	26.3	
OCT 11	10732.5	1:18:29.3	13 5 19.80	-6-57 -1.7	0.998311	-1.490	1922.6	6.1	284.0	26.3	
OCT 13	10734.5	1:26:22.4	13 12 42.63	-7-42 -7.0	0.997728	-1.485	1923.7	6.0	257.7	26.3	
OCT 15	10736.5	1:34:15.5	13 20 7.46	-8-26-46.5	0.997152	-1.478	1924.8	5.9	231.3	26.2	
OCT 17	10738.5	1:42: 8.6	13 27 34.49	-9-10-57.4	0.996585	-1.469	1925.9	5.7	204.9	26.1	
OCT 19	10740.5	1:50: 1.8	13 35 3.91	-9-54-36.7	0.996028	-1.459	1927.0	5.6	178.5	26.0	
OCT 21	10742.5	1:57:54.9	13 42 35.88	-10-37-41.7	0.995479	-1.446	1928.0	5.4	152.1	25.9	
OCT 23	10744.5	2: 5:48.0	13 50 10.54	-11-20 -9.1	0.994939	-1.432	1929.1	5.2	125.7	25.7	
OCT 25	10746.5	2:13:41.1	13 57 48.01	-12 -1-55.9	0.994404	-1.416	1930.1	5.0	99.4	25.5	
OCT 27	10748.5	2:21:34.2	14 5 28.40	-12-42-58.9	0.993874	-1.398	1931.1	4.9	73.0	25.2	
OCT 29	10750.5	2:29:27.3	14 13 11.80	-13-23-14.7	0.993347	-1.378	1932.2	4.7	46.6	25.0	
OCT 31	10752.5	2:37:20.4	14 20 58.29	-14 -2-40.1	0.992824	-1.356	1933.2	4.5	20.2	24.7	
NOV 2	10754.5	2:45:13.5	14 28 47.94	-14-41-11.9	0.992305	-1.333	1934.2	4.3	353.9	24.3	
NOV 4	10756.5	2:53: 6.6	14 36 40.80	-15-18-46.6	0.991789	-1.308	1935.2	4.1	327.5	24.0	
NOV 6	10758.5	3: 0:59.8	14 44 36.90	-15-55-21.0	0.991279	-1.282	1936.2	3.8	301.1	23.6	
NOV 8	10760.5	3: 8:52.9	14 52 36.24	-16-30-51.7	0.990777	-1.254	1937.2	3.6	274.8	23.1	
NOV 10	10762.5	3:16:46.0	15 0 38.87	-17 -5-15.3	0.990286	-1.225	1938.1	3.4	248.4	22.7	
NOV 12	10764.5	3:24:39.1	15 8 44.80	-17-38-28.6	0.989809	-1.195	1939.1	3.2	222.0	22.2	
NOV 14	10766.5	3:32:32.2	15 16 54.08	-18-10-28.5	0.989349	-1.163	1940.0	3.0	195.7	21.7	
NOV 16	10768.5	3:40:25.3	15 25 6.75	-18-41-12.1	0.988908	-1.130	1940.8	2.7	169.3	21.1	
NOV 18	10770.5	3:48:18.4	15 33 22.82	-19-10-36.5	0.988486	-1.095	1941.7	2.5	142.9	20.6	
NOV 20	10772.5	3:56:11.5	15 41 42.25	-19-38-38.5	0.988081	-1.059	1942.5	2.2	116.6	19.9	
NOV 22	10774.5	4: 4: 4.6	15 50 5.00	-20 -5-15.4	0.987693	-1.021	1943.2	2.0	90.2	19.3	
NOV 24	10776.5	4:11:57.7	15 58 31.00	-20-30-24.1	0.987319	-0.982	1944.0	1.7	63.8	18.6	
NOV 26	10778.5	4:19:50.9	16 7 0.15	-20-54 -1.9	0.986958	-0.942	1944.7	1.5	37.5	17.9	
NOV 28	10780.5	4:27:44.0	16 15 32.33	-21-16 -6.1	0.986610	-0.900	1945.4	1.2	11.1	17.2	
NOV 30	10782.5	4:35:37.1	16 24 7.38	-21-36-34.2	0.986274	-0.857	1946.0	1.0	344.8	16.5	
DEC 2	10784.5	4:43:30.2	16 32 45.12	-21-55-23.5	0.985948	-0.813	1946.7	0.7	318.4	15.7	
DEC 4	10786.5	4:51:23.3	16 41 25.35	-22-12-31.9	0.985635	-0.769	1947.3	0.5	292.1	14.9	
DEC 6	10788.5	4:59:16.4	16 50 7.83	-22-27-57.2	0.985336	-0.723	1947.9	0.2	265.7	14.1	
DEC 8	10790.5	5: 7: 9.5	16 58 52.34	-22-41-37.2	0.985052	-0.676	1948.4	0.0	239.3	13.3	
DEC 10	10792.5	5:15: 2.6	17 7 38.67	-22-53-30.2	0.984788	-0.629	1949.0	-0.3	213.0	12.4	
DEC 12	10794.5	5:22:55.7	17 16 26.61	-23 -3-34.7	0.984545	-0.581	1949.4	-0.5	186.6	11.5	
DEC 14	10796.5	5:30:48.9	17 25 15.97	-23-11-49.4	0.984327	-0.533	1949.9	-0.8	160.3	10.6	
DEC 16	10798.5	5:38:42.0	17 34 6.52	-23-18-13.4	0.984133	-0.484	1950.3	-1.0	133.9	9.7	
DEC 18	10800.5	5:46:35.1	17 42 58.02	-23-22-45.7	0.983963	-0.434	1950.6	-1.3	107.6	8.8	
DEC 20	10802.5	5:54:28.2	17 51 50.23	-23-25-25.7	0.983817	-0.383	1950.9	-1.6	81.2	7.9	
DEC 22	10804.5	6: 2:21.3	18 0 42.91	-23-26-12.8	0.983692	-0.332	1951.1	-1.8	54.9	7.0	
DEC 24	10806.5	6:10:14.4	18 9 35.77	-23-25 -7.0	0.983587	-0.281	1951.3	-2.1	28.5	6.0	
DEC 26	10808.5	6:18: 7.5	18 18 28.56	-23-22 -8.1	0.983500	-0.229	1951.5	-2.3	2.2	5.0	

1998 SUN

Geocentric Planetary Ephemeris

1998 SUN

Date	JD	GST	RA	[Mean]	Dec	Delta	RV	Diam	Hel.	Hel.	P.A.
(O DT)	(2440000+)	(O DT)	(h m s)		(d ' ")	(a.u.)	(km/s)	(")	Lat	Long	Axis
JAN 1	10814.5	6:41:46.9	18 45 3.53		-23 -1-58.5	0.9833333	-0.070	1951.8	-3.0	283.2	2.1
JAN 3	10816.5	6:49:40.0	18 53 53.05		-22-51-33.5	0.983308	-0.017	1951.9	-3.2	256.8	1.2
JAN 5	10818.5	6:57:33.1	19 2 41.02		-22-39-19.4	0.983300	0.036	1951.9	-3.5	230.5	0.2
JAN 7	10820.5	7: 5:26.2	19 11 27.21		-22-25-17.6	0.983311	0.088	1951.9	-3.7	204.2	-0.8
JAN 9	10822.5	7:13:19.3	19 20 11.40		-22 -9-29.7	0.983345	0.141	1951.8	-3.9	177.8	-1.7
JAN 11	10824.5	7:21:12.4	19 28 53.42		-21-51-57.8	0.983403	0.193	1951.7	-4.1	151.5	-2.7
JAN 13	10826.5	7:29: 5.5	19 37 33.09		-21-32-43.7	0.983486	0.244	1951.5	-4.3	125.1	-3.6
JAN 15	10828.5	7:36:58.6	19 46 10.26		-21-11-49.7	0.983594	0.296	1951.3	-4.5	98.8	-4.6
JAN 17	10830.5	7:44:51.7	19 54 44.82		-20-49-18.1	0.983728	0.347	1951.1	-4.7	72.5	-5.5
JAN 19	10832.5	7:52:44.8	20 3 16.63		-20-25-11.2	0.983884	0.398	1950.8	-4.9	46.1	-6.4
JAN 21	10834.5	8: 0:38.0	20 11 45.60		-19-59-31.7	0.984061	0.448	1950.4	-5.1	19.8	-7.3
JAN 23	10836.5	8: 8:31.1	20 20 11.64		-19-32-22.3	0.984258	0.498	1950.0	-5.3	353.5	-8.2
JAN 25	10838.5	8:16:24.2	20 28 34.65		-19 -3-45.9	0.984472	0.547	1949.6	-5.5	327.1	-9.1
JAN 27	10840.5	8:24:17.3	20 36 54.56		-18-33-45.5	0.984701	0.596	1949.1	-5.6	300.8	-10.0
JAN 29	10842.5	8:32:10.4	20 45 11.27		-18 -2-24.4	0.984942	0.644	1948.7	-5.8	274.5	-10.9
JAN 31	10844.5	8:40: 3.5	20 53 24.70		-17-29-45.6	0.985197	0.692	1948.2	-5.9	248.1	-11.7
FEB 2	10846.5	8:47:56.6	21 1 34.79		-16-55-52.5	0.985464	0.738	1947.6	-6.1	221.8	-12.5
FEB 4	10848.5	8:55:49.7	21 9 41.55		-16-20-48.3	0.985746	0.783	1947.1	-6.2	195.5	-13.3
FEB 6	10850.5	9: 3:42.8	21 17 44.99		-15-44-36.3	0.986046	0.827	1946.5	-6.4	169.1	-14.1
FEB 8	10852.5	9:11:36.0	21 25 45.14		-15 -7-19.8	0.986364	0.870	1945.9	-6.5	142.8	-14.8
FEB 10	10854.5	9:19:29.1	21 33 42.07		-14-29 -2.1	0.986704	0.912	1945.2	-6.6	116.5	-15.6
FEB 12	10856.5	9:27:22.2	21 41 35.86		-13-49-46.5	0.987064	0.952	1944.5	-6.7	90.1	-16.3
FEB 14	10858.5	9:35:15.3	21 49 26.60		-13 -9-36.1	0.987445	0.992	1943.7	-6.8	63.8	-17.0
FEB 16	10860.5	9:43: 8.4	21 57 14.42		-12-28-34.3	0.987845	1.030	1942.9	-6.9	37.5	-17.7
FEB 18	10862.5	9:51: 1.5	22 4 59.43		-11-46-44.2	0.988263	1.067	1942.1	-6.9	11.1	-18.3
FEB 20	10864.5	9:58:54.6	22 12 41.76		-11 -4 -9.0	0.988697	1.102	1941.3	-7.0	344.8	-19.0
FEB 22	10866.5	10: 6:47.7	22 20 21.51		-10-20-52.0	0.989144	1.137	1940.4	-7.1	318.5	-19.6
FEB 24	10868.5	10:14:40.8	22 27 58.80		-9-36-56.6	0.989601	1.170	1939.5	-7.1	292.1	-20.1
FEB 26	10870.5	10:22:34.0	22 35 33.72		-8-52-26.2	0.990066	1.202	1938.6	-7.2	265.8	-20.7
FEB 28	10872.5	10:30:27.1	22 43 6.38		-8 -7-24.0	0.990537	1.233	1937.7	-7.2	239.4	-21.2
MAR 2	10874.5	10:38:20.2	22 50 36.88		-7-21-53.4	0.991013	1.261	1936.7	-7.2	213.1	-21.7
MAR 4	10876.5	10:46:13.3	22 58 5.33		-6-35-57.8	0.991495	1.289	1935.8	-7.2	186.7	-22.2
MAR 6	10878.5	10:54: 6.4	23 5 31.88		-5-49-40.2	0.991986	1.314	1934.8	-7.2	160.4	-22.7
MAR 8	10880.5	11: 1:59.5	23 12 56.67		-5 -3 -4.0	0.992486	1.338	1933.8	-7.2	134.0	-23.1
MAR 10	10882.5	11: 9:52.6	23 20 19.86		-4-16-12.1	0.992999	1.359	1932.8	-7.2	107.7	-23.5
MAR 12	10884.5	11:17:45.7	23 27 41.63		-3-29 -7.6	0.993523	1.380	1931.8	-7.2	81.3	-23.9
MAR 14	10886.5	11:25:38.8	23 35 2.17		-2-41-53.4	0.994060	1.398	1930.8	-7.2	55.0	-24.2
MAR 16	10888.5	11:33:31.9	23 42 21.67		-1-54-32.4	0.994608	1.415	1929.7	-7.2	28.6	-24.6
MAR 18	10890.5	11:41:25.1	23 49 40.33		-1 -7 -7.3	0.995167	1.430	1928.6	-7.1	2.3	-24.9
MAR 20	10892.5	11:49:18.2	23 56 58.32		0-19-40.9	0.995735	1.443	1927.5	-7.1	335.9	-25.1
MAR 22	10894.5	11:57:11.3	0 4 15.82		0 27 43.7	0.996308	1.455	1926.4	-7.0	309.5	-25.4
MAR 24	10896.5	12: 5: 4.4	0 11 33.00		1 15 3.9	0.996885	1.465	1925.3	-6.9	283.1	-25.6
MAR 26	10898.5	12:12:57.5	0 18 50.01		2 2 16.5	0.997462	1.474	1924.2	-6.8	256.8	-25.8
MAR 28	10900.5	12:20:50.6	0 26 6.97		2 49 18.8	0.998037	1.481	1923.1	-6.7	230.4	-25.9
MAR 30	10902.5	12:28:43.7	0 33 24.02		3 36 7.6	0.998607	1.486	1922.0	-6.7	204.0	-26.1
APR 1	10904.5	12:36:36.8	0 40 41.29		4 22 40.1	0.999173	1.489	1920.9	-6.5	177.6	-26.2
APR 3	10906.5	12:44:29.9	0 47 58.90		5 8 53.2	0.999736	1.491	1919.8	-6.4	151.3	-26.2
APR 5	10908.5	12:52:23.1	0 55 16.98		5 54 44.2	1.000298	1.490	1918.7	-6.3	124.9	-26.3
APR 7	10910.5	13: 0:16.2	1 2 35.69		6 40 10.1	1.000861	1.488	1917.7	-6.2	98.5	-26.3
APR 9	10912.5	13: 8: 9.3	1 9 55.19		7 25 8.3	1.001425	1.484	1916.6	-6.1	72.1	-26.3
APR 11	10914.5	13:16: 2.4	1 17 15.63		8 9 36.2	1.001992	1.477	1915.5	-5.9	45.7	-26.2
APR 13	10916.5	13:23:55.5	1 24 37.20		8 53 31.1	1.002560	1.470	1914.4	-5.8	19.3	-26.2
APR 15	10918.5	13:31:48.6	1 32 0.04		9 36 50.6	1.003130	1.460	1913.3	-5.6	352.9	-26.1
APR 17	10920.5	13:39:41.7	1 39 24.30		10 19 31.9	1.003701	1.449	1912.2	-5.5	326.5	-25.9
APR 19	10922.5	13:47:34.8	1 46 50.14		11 1 32.6	1.004269	1.436	1911.2	-5.3	300.0	-25.8
APR 21	10924.5	13:55:27.9	1 54 17.66		11 42 50.0	1.004833	1.422	1910.1	-5.1	273.6	-25.6
APR 23	10926.5	14: 3:21.1	2 1 46.97		12 23 21.4	1.005390	1.406	1909.0	-4.9	247.2	-25.4
APR 25	10928.5	14:11:14.2	2 9 18.16		13 3 4.2	1.005936	1.389	1908.0	-4.8	220.8	-25.1
APR 27	10930.5	14:19: 7.3	2 16 51.29		13 41 55.6	1.006469	1.370	1907.0	-4.6	194.4	-24.8
APR 29	10932.5	14:27: 0.4	2 24 26.43		14 19 53.0	1.006988	1.350	1906.0	-4.4	167.9	-24.5
MAY 1	10934.5	14:34:53.5	2 32 3.59		14 56 53.6	1.007494	1.328	1905.0	-4.2	141.5	-24.2
MAY 3	10936.5	14:42:46.6	2 39 42.81		15 32 54.7	1.007988	1.304	1904.1	-4.0	115.1	-23.8
MAY 5	10938.5	14:50:39.7	2 47 24.13		16 7 53.7	1.008471	1.279	1903.2	-3.8	88.6	-23.4
MAY 7	10940.5	14:58:32.8	2 55 7.61		16 41 48.0	1.008947	1.252	1902.3	-3.6	62.2	-23.0
MAY 9	10942.5	15: 6:25.9	3 2 53.29		17 14 35.4	1.009415	1.223	1901.4	-3.3	35.8	-22.6
MAY 11	10944.5	15:14:19.1	3 10 41.22		17 46 13.5	1.009876	1.193	1900.5	-3.1	9.3	-22.1
MAY 13	10946.5	15:22:12.2	3 18 31.45		18 16 40.0	1.010330	1.162	1899.7	-2.9	342.9	-21.6
MAY 15	10948.5	15:30: 5.3	3 26 23.99		18 45 52.7	1.010777	1.129	1898.8	-2.7	316.4	-21.0
MAY 17	10950.5	15:37:58.4	3 34 18.84		19 13 49.6	1.011215	1.095	1898.0	-2.5	290.0	-20.5
MAY 19	10952.5	15:45:51.5	3 42 16.00		19 40 28.4	1.011643	1.060	1897.2	-2.2	263.5	-19.9
MAY 21	10954.5	15:53:44.6	3 50 15.43		20 5 47.1	1.012057	1.025	1896.4	-2.0	237.0	-19.3
MAY 23	10956.5	16: 1:37.7	3 58 17.08		20 29 43.6	1.012455	0.988	1895.7	-1.8	210.6	-18.7
MAY 25	10958.5	16: 9:30.8	4 6 20.88		20 52 15.8	1.012833	0.950	1895.0	-1.5	184.1	-18.0
MAY 27	10960.5	16:17:23.9	4 14 26.70		21 13 22.0	1.013191	0.911	1894.3	-1.3	157.7	-17.3
MAY 29	10962.5	16:25:17.0	4 22 34.40		21 33 0.3	1.013527	0.871	1893.7	-1.0	131.2	-16.6
MAY 31	10964.5	16:33:10.2	4 30 43.83		21 51 8.8	1.013844	0.830	1893.1	-0.8	104.7	-15.9
JUN 2	10966.5	16:41: 3.3	4 38 54.86								

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	Mean (d ° ')	Dec (d ° ')	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	10996.5	18:39:19.9	6 43 14.00	23 3 54.9	1.016688	0.077	1887.8	3.0	41.2	-2.3	
JUL 4	10998.5	18:47:13.0	6 51 29.41	22 54 34.9	1.016696	0.027	1887.8	3.2	14.7	-1.4	
JUL 6	11000.5	18:55:6.2	6 59 43.50	22 43 39.1	1.016688	-0.023	1887.8	3.4	348.2	-0.5	
JUL 8	11002.5	19: 2:59.3	7 7 56.16	22 31 8.7	1.016664	-0.074	1887.8	3.6	321.8	0.4	
JUL 10	11004.5	19:10:52.4	7 16 7.23	22 17 4.8	1.016626	-0.124	1887.9	3.8	295.3	1.3	
JUL 12	11006.5	19:18:45.5	7 24 16.62	22 1 28.9	1.016575	-0.174	1888.0	4.0	268.8	2.2	
JUL 14	11008.5	19:26:38.6	7 32 24.23	21 44 22.2	1.016510	-0.224	1888.1	4.2	242.4	3.1	
JUL 16	11010.5	19:34:31.7	7 40 29.96	21 25 46.3	1.016429	-0.274	1888.3	4.4	215.9	4.0	
JUL 18	11012.5	19:42:24.8	7 48 33.74	21 5 42.9	1.016330	-0.323	1888.5	4.6	189.4	4.8	
JUL 20	11014.5	19:50:17.9	7 56 35.49	20 44 13.6	1.016211	-0.372	1888.7	4.8	163.0	5.7	
JUL 22	11016.5	19:58:11.0	8 4 35.09	20 21 20.4	1.016068	-0.420	1889.0	5.0	136.5	6.6	
JUL 24	11018.5	20: 6: 4.1	8 12 32.43	19 57 5.5	1.015902	-0.467	1889.3	5.1	110.1	7.4	
JUL 26	11020.5	20:13:57.3	8 20 27.41	19 31 30.9	1.015713	-0.514	1889.6	5.3	83.6	8.3	
JUL 28	11022.5	20:21:50.4	8 28 19.97	19 4 38.6	1.015500	-0.561	1890.0	5.5	57.1	9.1	
JUL 30	11024.5	20:29:43.5	8 36 10.07	18 36 30.9	1.015267	-0.607	1890.4	5.6	30.7	9.9	
AUG 1	11026.5	20:37:36.6	8 43 57.67	18 7 10.1	1.015015	-0.653	1890.9	5.8	4.2	10.7	
AUG 3	11028.5	20:45:29.7	8 51 42.77	17 36 38.4	1.014746	-0.698	1891.4	5.9	337.8	11.5	
AUG 5	11030.5	20:53:22.8	8 59 25.40	17 4 58.1	1.014462	-0.742	1891.9	6.1	311.3	12.3	
AUG 7	11032.5	21: 1:15.9	9 7 5.58	16 32 11.7	1.014166	-0.785	1892.5	6.2	284.9	13.1	
AUG 9	11034.5	21: 9: 9.0	9 14 43.36	15 58 21.6	1.013859	-0.828	1893.1	6.3	258.4	13.8	
AUG 11	11036.5	21:17: 2.1	9 22 18.82	15 23 29.9	1.013541	-0.870	1893.7	6.4	232.0	14.5	
AUG 13	11038.5	21:24:55.3	9 29 52.06	14 47 39.0	1.013213	-0.911	1894.3	6.5	205.6	15.2	
AUG 15	11040.5	21:32:48.4	9 37 23.16	14 10 51.2	1.012872	-0.950	1894.9	6.6	179.1	15.9	
AUG 17	11042.5	21:40:41.5	9 44 52.22	13 33 9.0	1.012516	-0.989	1895.6	6.7	152.7	16.6	
AUG 19	11044.5	21:48:34.6	9 52 19.29	12 54 35.0	1.012142	-1.026	1896.3	6.8	126.3	17.2	
AUG 21	11046.5	21:56:27.7	9 59 44.43	12 15 11.8	1.011750	-1.062	1897.0	6.9	99.8	17.9	
AUG 23	11048.5	22: 4:20.8	10 7 7.69	11 35 2.1	1.011339	-1.096	1897.8	7.0	73.4	18.5	
AUG 25	11050.5	22:12:13.9	10 14 29.17	10 54 8.5	1.010910	-1.130	1898.6	7.1	47.0	19.1	
AUG 27	11052.5	22:20: 7.0	10 21 48.94	10 12 33.5	1.010463	-1.162	1899.4	7.1	20.5	19.7	
AUG 29	11054.5	22:28: 0.1	10 29 7.13	9 30 19.8	1.010002	-1.193	1900.3	7.1	354.1	20.2	
AUG 31	11056.5	22:35:53.3	10 36 23.84	8 47 30.1	1.009528	-1.223	1901.2	7.2	327.7	20.8	
SEP 2	11058.5	22:43:46.4	10 43 39.20	8 4 6.9	1.009043	-1.252	1902.1	7.2	301.3	21.3	
SEP 4	11060.5	22:51:39.5	10 50 53.34	7 20 12.8	1.008550	-1.279	1903.0	7.2	274.9	21.8	
SEP 6	11062.5	22:59:32.6	10 58 6.42	6 35 50.5	1.008052	-1.305	1904.0	7.2	248.4	22.2	
SEP 8	11064.5	23: 7:25.7	11 5 18.61	5 51 2.4	1.007550	-1.329	1904.9	7.2	222.0	22.7	
SEP 10	11066.5	23:15:18.8	11 12 30.11	5 5 50.8	1.007046	-1.352	1905.9	7.2	195.6	23.1	
SEP 12	11068.5	23:23:11.9	11 19 41.11	4 20 18.1	1.006537	-1.374	1906.8	7.2	169.2	23.5	
SEP 14	11070.5	23:31: 5.0	11 26 51.77	3 34 26.8	1.006021	-1.393	1907.8	7.2	142.8	23.8	
SEP 16	11072.5	23:38:58.1	11 34 2.25	2 48 19.7	1.005497	-1.411	1908.8	7.2	116.4	24.2	
SEP 18	11074.5	23:46:51.2	11 41 12.67	2 1 59.6	1.004963	-1.427	1909.8	7.2	90.0	24.5	
SEP 20	11076.5	23:54:44.4	11 48 23.17	1 15 29.0	1.004419	-1.441	1910.9	7.1	63.6	24.8	
SEP 22	11078.5	0: 2:37.5	11 55 33.90	0 28 50.9	1.003864	-1.454	1911.9	7.1	37.2	25.1	
SEP 24	11080.5	0:10:30.6	12 2 44.98	0-17-52.0	1.003299	-1.465	1913.0	7.0	10.8	25.3	
SEP 26	11082.5	0:18:23.7	12 9 56.58	-1 -4-36.9	1.002727	-1.474	1914.1	6.9	344.4	25.5	
SEP 28	11084.5	0:26:16.8	12 17 8.84	-1-51-20.9	1.002148	-1.482	1915.2	6.9	318.0	25.7	
SEP 30	11086.5	0:34: 9.9	12 24 21.90	-2-38 -1.1	1.001566	-1.488	1916.3	6.8	291.6	25.9	
OCT 2	11088.5	0:42: 3.0	12 31 35.93	-3-24-34.8	1.000983	-1.492	1917.4	6.7	265.2	26.0	
OCT 4	11090.5	0:49:56.1	12 38 51.08	-4-10-59.0	1.000402	-1.495	1918.5	6.6	238.8	26.1	
OCT 6	11092.5	0:57:49.2	12 46 7.55	-4-57-11.0	0.999825	-1.497	1919.6	6.5	212.4	26.2	
OCT 8	11094.5	1: 5:42.4	12 53 25.55	-5-43 -8.2	0.999255	-1.496	1920.7	6.4	186.1	26.3	
OCT 10	11096.5	1:13:35.5	13 0 45.28	-6-28-48.0	0.998691	-1.494	1921.8	6.2	159.7	26.3	
OCT 12	11098.5	1:21:28.6	13 8 6.92	-7-14 -7.4	0.998131	-1.489	1922.9	6.1	133.3	26.3	
OCT 14	11100.5	1:29:21.7	13 15 30.61	-7-59 -3.6	0.997574	-1.483	1924.0	6.0	106.9	26.3	
OCT 16	11102.5	1:37:14.8	13 22 56.49	-8-43-33.5	0.997017	-1.475	1925.1	5.8	80.5	26.2	
OCT 18	11104.5	1:45: 7.9	13 30 24.69	-9-27-34.0	0.996460	-1.465	1926.1	5.7	54.1	26.1	
OCT 20	11106.5	1:53: 1.0	13 37 55.33	-10-11 -1.9	0.995903	-1.453	1927.2	5.5	27.8	26.0	
OCT 22	11108.5	2: 0:54.1	13 45 28.52	-10-53-54.1	0.995346	-1.440	1928.3	5.3	1.4	25.8	
OCT 24	11110.5	2: 8:47.2	13 53 4.37	-11-36 -7.3	0.994789	-1.424	1929.4	5.2	335.0	25.6	
OCT 26	11112.5	2:16:40.4	14 0 42.97	-12-17-38.3	0.994235	-1.407	1930.4	5.0	308.6	25.4	
OCT 28	11114.5	2:24:33.5	14 8 24.41	-12-58-23.7	0.993684	-1.389	1931.5	4.8	282.3	25.1	
OCT 30	11116.5	2:32:26.6	14 16 8.77	-13-38-20.3	0.993141	-1.369	1932.6	4.6	255.9	24.9	
NOV 1	11118.5	2:40:19.7	14 23 56.13	-14-17-24.7	0.992607	-1.347	1933.6	4.4	229.5	24.5	
NOV 3	11120.5	2:48:12.8	14 31 46.61	-14-55-33.7	0.992086	-1.324	1934.6	4.2	203.1	24.2	
NOV 5	11122.5	2:56: 5.9	14 39 40.31	-15-32-44.3	0.991580	-1.300	1935.6	4.0	176.8	23.8	
NOV 7	11124.5	3: 3:59.0	14 47 37.35	-16 -8-53.5	0.991090	-1.273	1936.6	3.8	150.4	23.4	
NOV 9	11126.5	3:11:52.1	14 55 37.79	-16-43-58.3	0.990615	-1.246	1937.5	3.5	124.0	23.0	
NOV 11	11128.5	3:19:45.2	15 3 41.68	-17-17-55.4	0.990154	-1.216	1938.4	3.3	97.7	22.5	
NOV 13	11130.5	3:27:38.3	15 11 49.03	-17-50-41.5	0.989705	-1.185	1939.3	3.1	71.3	22.0	
NOV 15	11132.5	3:35:31.5	15 19 59.83	-18-22-13.6	0.989266	-1.152	1940.1	2.9	44.9	21.5	
NOV 17	11134.5	3:43:24.6	15 28 14.06	-18-52-28.5	0.988836	-1.118	1941.0	2.6	18.6	20.9	
NOV 19	11136.5	3:51:17.7	15 36 31.68	-19-21-22.9	0.988415	-1.082	1941.8	2.4	352.2	20.3	
NOV 21	11138.5	3:59:10.8	15 44 52.61	-19-48-53.9	0.988003	-1.045	1942.6	2.1	325.8	19.7	
NOV 23	11140.5	4: 7: 3.9	15 53 16.75	-20-14-58.5	0.987601	-1.006	1943.4	1.9	299.5	19.1	
NOV 25	11142.5	4:14:57.0	16 1 43.98	-20-39-33.6	0.987210	-0.966	1944.2	1.7	273.1	18.4	
NOV 27	11144.5	4:22:50.1	16 10 14.16	-21 -2-36.5	0.986832	-0.926	1944.9	1.4	246.7	17.7	
NOV 29	11146.5	4:30:43.2	16 18 47.18	-21-24 -4.3	0.986469	-0.884	1945.6	1.2	220.4	16.9	
DEC 1	11148.5	4:38:36.3	16 27 22.89	-21-43-54.6	0.986126	-0.842	1946.3	0.9	194.0	16.2	
DEC 3	11150.5	4:46:29.5	16 36 1.17	-22 -2 -5.1	0.985804	-0.798	1947.0	0.6	167.7	15.4	
DEC 5	11152.5	4:54:22.6	16 44 41.90	-22-18-33.8	0.985506	-0.754	1947.5	0.4	141.3	14.6	
DEC 7	11154.5	5: 2:15.7	16 53 24.91	-22-33-18.8	0.985231	-0.708	1948.1	0.1	115.0	13.8	
DEC 9	11156.5	5:10: 8.8	17 2 10.02	-22-46-18.1	0.984978	-0.662	1948.6	-0.1	88.6	12.9	
DEC 11	11158.5	5:18: 1.9	17 10 57.02	-22-57-30.2	0.984745	-0.614	1949.1	-0.4	62.2	12.1	
DEC 13	11160.5	5:25:55.0	17 19 45.69	-23 -6-53.5	0.984530	-0.566	1949.5	-0.6	35.9	11.2	
DEC 15	11162.5	5:33:48.1	17 28 35.78	-23-14-26.7	0.984332	-0.517	1949.9	-0.9	9.5	10.3	
DEC 17	11164.5	5:41:41.2	17 37 27.02	-23-20 -8.9	0.984149	-0.467	1950.2	-1.1	343.2	9.4	
DEC 19	11166.5	5:49:34.3	17 46 19.13	-23-23-59.2	0.983982	-0.416	1950.6	-1.4	316.8	8.5	
DEC 21	11168.5	5:57:27.5	17 55 11.80	-23-25-57.0	0.983828	-0.365	1950.9	-1.6	290.5	7.5	
DEC 23	11170.5	6: 5:20.6	18 4 4.73	-23-26 -1.9	0.983690	-0.313	1951.1	-1.9	264.2	6.6	
DEC 25	11172.5	6:13:13.7	18 12 57.60	-23-24-13.9	0.983568	-0.261	1951.4	-2.1	237.8	5.6	
DEC 27	11174.5	6:21: 6.8	18 21 50.11	-23-20-32.8	0.983464	-0.209	1951.6	-2.4	211.5	4.7	

Date	JD	GST	RA	[Mean]	Dec	Delta	RV	Diam	Hel.	Hel.	P.A.
(0 DT)	(2440000+)	(0 DT)	(h m s)		(d ' ")	(a.u.)	(km/s)	(")	Lat	Long	Axis
JAN 2	11180.5	6:44:46.1	18 48 23.00		-22-58-17.3	0.983289	-0.053	1951.9	-3.1	132.4	1.8
JAN 4	11182.5	6:52:39.2	18 57 11.63		-22-47-11.1	0.983282	-0.001	1952.0	-3.3	106.1	0.8
JAN 6	11184.5	7: 0:32.3	19 5 58.73		-22-34-16.2	0.983300	0.052	1951.9	-3.6	79.8	-0.2
JAN 8	11186.5	7: 8:25.4	19 14 44.11		-22-19-34.2	0.983342	0.104	1951.8	-3.8	53.4	-1.1
JAN 10	11188.5	7:16:18.6	19 23 27.56		-22 -3 -6.8	0.983407	0.156	1951.7	-4.0	27.1	-2.1
JAN 12	11190.5	7:24:11.7	19 32 8.90		-21-44-55.8	0.983491	0.209	1951.5	-4.2	0.7	-3.0
JAN 14	11192.5	7:32: 4.8	19 40 47.93		-21-25 -3.4	0.983593	0.261	1951.3	-4.4	334.4	-4.0
JAN 16	11194.5	7:39:57.9	19 49 24.47		-21 -3-31.8	0.983712	0.313	1951.1	-4.6	308.1	-4.9
JAN 18	11196.5	7:47:51.0	19 57 58.33		-20-40-23.6	0.983845	0.364	1950.8	-4.8	281.7	-5.9
JAN 20	11198.5	7:55:44.1	20 6 29.34		-20-15-41.2	0.983993	0.415	1950.5	-5.0	255.4	-6.8
JAN 22	11200.5	8: 3:37.2	20 14 57.35		-19-49-27.5	0.984156	0.466	1950.2	-5.2	229.1	-7.7
JAN 24	11202.5	8:11:30.3	20 23 22.23		-19-21-45.2	0.984335	0.516	1949.9	-5.4	202.7	-8.6
JAN 26	11204.5	8:19:23.4	20 31 43.90		-18-52-37.3	0.984531	0.565	1949.5	-5.5	176.4	-9.5
JAN 28	11206.5	8:27:16.6	20 40 2.31		-18-22 -6.8	0.984748	0.613	1949.0	-5.7	150.1	-10.3
JAN 30	11208.5	8:35: 9.7	20 48 17.43		-17-50-16.9	0.984988	0.660	1948.6	-5.9	123.7	-11.2
FEB 1	11210.5	8:43: 2.8	20 56 29.26		-17-17-10.7	0.985251	0.706	1948.0	-6.0	97.4	-12.0
FEB 3	11212.5	8:50:55.9	21 4 37.81		-16-42-51.2	0.985538	0.751	1947.5	-6.1	71.1	-12.8
FEB 5	11214.5	8:58:49.0	21 12 43.14		-16 -7-21.7	0.985846	0.796	1946.9	-6.3	44.7	-13.6
FEB 7	11216.5	9: 6:42.1	21 20 45.29		-15-30-45.1	0.986176	0.839	1946.2	-6.4	18.4	-14.4
FEB 9	11218.5	9:14:35.2	21 28 44.31		-14-53 -4.9	0.986523	0.882	1945.5	-6.5	352.1	-15.1
FEB 11	11220.5	9:22:28.3	21 36 40.27		-14-14-24.3	0.986886	0.923	1944.8	-6.6	325.7	-15.9
FEB 13	11222.5	9:30:21.4	21 44 33.20		-13-34-46.6	0.987262	0.964	1944.1	-6.7	299.4	-16.6
FEB 15	11224.5	9:38:14.6	21 52 23.17		-12-54-15.3	0.987650	1.004	1943.3	-6.8	273.1	-17.3
FEB 17	11226.5	9:46: 7.7	22 0 10.23		-12-12-53.8	0.988048	1.042	1942.5	-6.9	246.7	-17.9
FEB 19	11228.5	9:54: 0.8	22 7 54.43		-11-30-45.4	0.988454	1.079	1941.7	-7.0	220.4	-18.6
FEB 21	11230.5	10: 1:53.9	22 15 35.87		-10-47-53.7	0.988869	1.114	1940.9	-7.0	194.1	-19.2
FEB 23	11232.5	10: 9:47.0	22 23 14.63		-10 -4-22.0	0.989294	1.148	1940.1	-7.1	167.7	-19.8
FEB 25	11234.5	10:17:40.1	22 30 50.83		-9-20-13.6	0.989732	1.181	1939.2	-7.1	141.4	-20.4
FEB 27	11236.5	10:25:33.2	22 38 24.61		-8-35-31.8	0.990185	1.212	1938.3	-7.2	115.0	-20.9
MAR 1	11238.5	10:33:26.3	22 45 56.12		-7-50-19.9	0.990654	1.241	1937.4	-7.2	88.7	-21.4
MAR 3	11240.5	10:41:19.4	22 53 25.52		-7 -4-40.9	0.991139	1.268	1936.5	-7.2	62.3	-21.9
MAR 5	11242.5	10:49:12.5	23 0 52.99		-6-18-37.8	0.991640	1.294	1935.5	-7.2	36.0	-22.4
MAR 7	11244.5	10:57: 5.7	23 8 18.73		-5-32-13.6	0.992154	1.319	1934.5	-7.2	9.6	-22.8
MAR 9	11246.5	11: 4:58.8	23 15 42.90		-4-45-31.2	0.992681	1.342	1933.5	-7.2	343.3	-23.3
MAR 11	11248.5	11:12:51.9	23 23 5.67		-3-58-33.7	0.993218	1.363	1932.4	-7.2	316.9	-23.7
MAR 13	11250.5	11:20:45.0	23 30 27.20		-3-11-24.2	0.993762	1.383	1931.4	-7.2	290.6	-24.0
MAR 15	11252.5	11:28:38.1	23 37 47.64		-2-24 -5.6	0.994310	1.402	1930.3	-7.2	264.2	-24.4
MAR 17	11254.5	11:36:31.2	23 45 7.13		-1-36-41.0	0.994861	1.418	1929.2	-7.1	237.9	-24.7
MAR 19	11256.5	11:44:24.3	23 52 25.79		0-49-13.6	0.995412	1.433	1928.2	-7.1	211.5	-25.0
MAR 21	11258.5	11:52:17.4	23 59 43.78		0 -1-46.3	0.995962	1.447	1927.1	-7.0	185.1	-25.2
MAR 23	11260.5	12: 0:10.5	0 7 1.22		0 45 37.7	0.996512	1.458	1926.0	-7.0	158.8	-25.5
MAR 25	11262.5	12: 8: 3.7	0 14 18.25		1 32 55.4	0.997064	1.468	1925.0	-6.9	132.4	-25.7
MAR 27	11264.5	12:15:56.8	0 21 35.03		2 20 3.9	0.997620	1.475	1923.9	-6.8	106.0	-25.8
MAR 29	11266.5	12:23:49.9	0 28 51.73		3 7 0.2	0.998181	1.481	1922.8	-6.7	79.6	-26.0
MAR 31	11268.5	12:31:43.0	0 36 8.53		3 53 41.7	0.998749	1.485	1921.7	-6.6	53.3	-26.1
APR 2	11270.5	12:39:36.1	0 43 25.62		4 40 5.7	0.999323	1.487	1920.6	-6.5	26.9	-26.2
APR 4	11272.5	12:47:29.2	0 50 43.19		5 26 9.6	0.999902	1.487	1919.5	-6.4	0.5	-26.3
APR 6	11274.5	12:55:22.3	0 58 1.42		6 11 50.8	1.000486	1.486	1918.4	-6.3	334.1	-26.3
APR 8	11276.5	13: 3:15.4	1 5 20.46		6 57 6.6	1.001071	1.483	1917.3	-6.1	307.7	-26.3
APR 10	11278.5	13:11: 8.5	1 12 40.48		7 41 54.4	1.001655	1.478	1916.1	-6.0	281.3	-26.3
APR 12	11280.5	13:19: 1.7	1 20 1.59		8 26 11.4	1.002237	1.472	1915.0	-5.9	254.9	-26.2
APR 14	11282.5	13:26:54.8	1 27 23.94		9 9 54.8	1.002812	1.464	1913.9	-5.7	228.5	-26.1
APR 16	11284.5	13:34:47.9	1 34 47.62		9 53 1.8	1.003379	1.455	1912.9	-5.6	202.1	-26.0
APR 18	11286.5	13:42:41.0	1 42 12.75		10 35 29.8	1.003935	1.443	1911.8	-5.4	175.7	-25.9
APR 20	11288.5	13:50:34.1	1 49 39.40		11 17 15.7	1.004481	1.431	1910.8	-5.2	149.3	-25.7
APR 22	11290.5	13:58:27.2	1 57 7.64		11 58 16.8	1.005017	1.416	1909.7	-5.1	122.9	-25.5
APR 24	11292.5	14: 6:20.3	2 4 37.56		12 38 30.2	1.005546	1.399	1908.7	-4.9	96.4	-25.3
APR 26	11294.5	14:14:13.4	2 12 9.25		13 17 53.3	1.006070	1.381	1907.7	-4.7	70.0	-25.0
APR 28	11296.5	14:22: 6.5	2 19 42.83		13 56 23.5	1.006590	1.361	1906.7	-4.5	43.6	-24.7
APR 30	11298.5	14:29:59.7	2 27 18.40		14 33 58.4	1.007106	1.339	1905.8	-4.3	17.2	-24.4
MAY 2	11300.5	14:37:52.8	2 34 56.06		15 10 35.5	1.007619	1.316	1904.8	-4.1	350.7	-24.1
MAY 4	11302.5	14:45:45.9	2 42 35.91		15 46 12.4	1.008127	1.291	1903.8	-3.9	324.3	-23.7
MAY 6	11304.5	14:53:39.0	2 50 18.01		16 20 46.8	1.008630	1.265	1902.9	-3.7	297.9	-23.3
MAY 8	11306.5	15: 1:32.1	2 58 2.40		16 54 16.3	1.009125	1.238	1902.0	-3.5	271.4	-22.8
MAY 10	11308.5	15: 9:25.2	3 5 49.13		17 26 38.3	1.009609	1.209	1901.0	-3.3	245.0	-22.4
MAY 12	11310.5	15:17:18.3	3 13 38.21		17 57 50.6	1.010081	1.179	1900.2	-3.0	218.5	-21.9
MAY 14	11312.5	15:25:11.4	3 21 29.65		18 27 50.8	1.010538	1.148	1899.3	-2.8	192.1	-21.4
MAY 16	11314.5	15:33: 4.5	3 29 23.42		18 56 36.5	1.010976	1.116	1898.5	-2.6	165.6	-20.8
MAY 18	11316.5	15:40:57.6	3 37 19.44		19 24 5.3	1.011394	1.083	1897.7	-2.4	139.2	-20.3
MAY 20	11318.5	15:48:50.8	3 45 17.65		19 50 15.1	1.011795	1.048	1896.9	-2.1	112.7	-19.7
MAY 22	11320.5	15:56:43.9	3 53 17.94		20 15 3.4	1.012179	1.011	1896.2	-1.9	86.3	-19.1
MAY 24	11322.5	16: 4:37.0	4 1 20.26		20 38 28.3	1.012548	0.974	1895.5	-1.7	59.8	-18.4
MAY 26	11324.5	16:12:30.1	4 9 24.56		21 0 27.7	1.012905	0.935	1894.9	-1.4	33.4	-17.7
MAY 28	11326.5	16:20:23.2	4 17 30.76		21 21 0.0	1.013250	0.895	1894.2	-1.2	6.9	-17.1
MAY 30	11328.5	16:28:16.3	4 25 38.81		21 40 3.6	1.013584	0.854	1893.6	-1.0	340.4	-16.3
JUN 1	11330.5	16:36: 9.4	4 33 48.62		21 57 37.0	1.013907	0.812	1893.0	-0.7	314.0	-15.6
JUN 3	11332.5	16:44: 2.5	4 42 0.08		22 13 38.6	1.014219	0.769	1892.4	-0.5	287.5	-14.9
JUN 5	11334.5	16:51:55.6	4 50 13.08		22 28 7.3	1.014518	0.726	1891.			

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ° ')	Dec (d ° ')	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 1	11360.5	18:34:26.1	6 38 4.74	23 8 56.1	1.016641	0.106	1887.9	2.8	276.9	-2.9	
JUL 3	11362.5	18:42:19.2	6 46 20.73	23 0 36.0	1.016683	0.056	1887.8	3.0	250.4	-2.0	
JUL 5	11364.5	18:50:12.3	6 54 35.63	22 50 39.6	1.016709	0.006	1887.8	3.3	223.9	-1.1	
JUL 7	11366.5	18:58:5.4	7 2 49.30	22 39 7.8	1.016718	-0.044	1887.7	3.5	197.5	-0.2	
JUL 9	11368.5	19:5:58.5	7 11 1.61	22 26 1.6	1.016707	-0.094	1887.8	3.7	171.0	0.7	
JUL 11	11370.5	19:13:51.6	7 19 12.40	22 11 22.4	1.016674	-0.144	1887.8	3.9	144.5	1.6	
JUL 13	11372.5	19:21:44.7	7 27 21.51	21 55 11.6	1.016616	-0.193	1887.9	4.1	118.1	2.5	
JUL 15	11374.5	19:29:37.9	7 35 28.74	21 37 30.8	1.016533	-0.243	1888.1	4.3	91.6	3.4	
JUL 17	11376.5	19:37:31.0	7 43 33.94	21 18 21.5	1.016425	-0.292	1888.3	4.5	65.1	4.3	
JUL 19	11378.5	19:45:24.1	7 51 36.99	20 57 45.5	1.016296	-0.341	1888.5	4.7	38.7	5.2	
JUL 21	11380.5	19:53:17.2	7 59 37.80	20 35 44.6	1.016146	-0.389	1888.8	4.9	12.2	6.0	
JUL 23	11382.5	20:1:10.3	8 7 36.30	20 12 20.7	1.015978	-0.438	1889.1	5.0	345.7	6.9	
JUL 25	11384.5	20:9:3.4	8 15 32.44	19 47 35.9	1.015794	-0.486	1889.5	5.2	319.3	7.8	
JUL 27	11386.5	20:16:56.5	8 23 26.18	19 21 32.2	1.015596	-0.533	1889.8	5.4	292.8	8.6	
JUL 29	11388.5	20:24:49.6	8 31 17.51	18 54 11.8	1.015384	-0.580	1890.2	5.5	266.4	9.4	
JUL 31	11390.5	20:32:42.7	8 39 6.42	18 25 36.8	1.015161	-0.627	1890.6	5.7	239.9	10.2	
AUG 2	11392.5	20:40:35.9	8 46 52.94	17 55 49.3	1.014924	-0.672	1891.1	5.8	213.5	11.0	
AUG 4	11394.5	20:48:29.0	8 54 37.09	17 24 51.5	1.014673	-0.717	1891.6	6.0	187.0	11.8	
AUG 6	11396.5	20:56:22.1	9 2 18.92	16 52 45.6	1.014407	-0.761	1892.1	6.1	160.6	12.6	
AUG 8	11398.5	21:4:15.2	9 9 58.45	16 19 34.1	1.014122	-0.803	1892.6	6.2	134.1	13.3	
AUG 10	11400.5	21:12:8.3	9 17 35.69	15 45 19.4	1.013816	-0.845	1893.2	6.3	107.7	14.1	
AUG 12	11402.5	21:20:1.4	9 25 10.63	15 10 4.0	1.013489	-0.886	1893.8	6.5	81.2	14.8	
AUG 14	11404.5	21:27:54.5	9 32 43.30	14 33 50.6	1.013140	-0.926	1894.4	6.6	54.8	15.5	
AUG 16	11406.5	21:35:47.6	9 40 13.73	13 56 41.6	1.012771	-0.965	1895.1	6.7	28.4	16.2	
AUG 18	11408.5	21:43:40.7	9 47 41.99	13 18 39.6	1.012385	-1.003	1895.8	6.8	1.9	16.8	
AUG 20	11410.5	21:51:33.9	9 55 8.16	12 39 47.2	1.011982	-1.040	1896.6	6.8	335.5	17.5	
AUG 22	11412.5	21:59:27.0	10 2 32.33	12 0 6.9	1.011567	-1.076	1897.4	6.9	309.1	18.1	
AUG 24	11414.5	22:7:20.1	10 9 54.61	11 19 41.3	1.011141	-1.110	1898.2	7.0	282.6	18.7	
AUG 26	11416.5	22:15:13.2	10 17 15.12	10 38 33.0	1.010706	-1.144	1899.0	7.1	256.2	19.3	
AUG 28	11418.5	22:23:6.3	10 24 33.99	9 56 44.4	1.010263	-1.177	1899.8	7.1	229.8	19.9	
AUG 30	11420.5	22:30:59.4	10 31 51.38	9 14 18.0	1.009814	-1.208	1900.7	7.1	203.3	20.4	
SEP 1	11422.5	22:38:52.5	10 39 7.45	8 31 16.0	1.009358	-1.237	1901.5	7.2	176.9	20.9	
SEP 3	11424.5	22:46:45.6	10 46 22.37	7 47 40.8	1.008893	-1.265	1902.4	7.2	150.5	21.5	
SEP 5	11426.5	22:54:38.7	10 53 36.29	7 3 35.1	1.008417	-1.292	1903.3	7.2	124.1	21.9	
SEP 7	11428.5	23:2:31.8	11 0 49.31	6 19 1.5	1.007929	-1.317	1904.2	7.2	97.7	22.4	
SEP 9	11430.5	23:10:25.0	11 8 1.55	5 34 2.7	1.007427	-1.340	1905.2	7.2	71.3	22.8	
SEP 11	11432.5	23:18:18.1	11 15 13.13	4 48 41.4	1.006910	-1.361	1906.1	7.2	44.9	23.2	
SEP 13	11434.5	23:26:11.2	11 22 24.17	4 3 0.3	1.006379	-1.382	1907.1	7.2	18.4	23.6	
SEP 15	11436.5	23:34:4.3	11 29 34.82	3 17 2.1	1.005837	-1.400	1908.2	7.2	352.0	24.0	
SEP 17	11438.5	23:41:57.4	11 36 45.21	2 30 49.7	1.005285	-1.417	1909.2	7.2	325.6	24.3	
SEP 19	11440.5	23:49:50.5	11 43 55.51	1 44 25.7	1.004726	-1.433	1910.3	7.1	299.2	24.6	
SEP 21	11442.5	23:57:43.6	11 51 5.85	0 57 52.8	1.004162	-1.447	1911.4	7.1	272.8	24.9	
SEP 23	11444.5	0:5:36.7	11 58 16.41	0 11 13.9	1.003595	-1.460	1912.4	7.0	246.4	25.2	
SEP 25	11446.5	0:13:29.8	12 5 27.37	0-35-28.6	1.003029	-1.471	1913.5	7.0	220.0	25.4	
SEP 27	11448.5	0:21:23.0	12 12 38.93	-1-22-11.9	1.002465	-1.480	1914.6	6.9	193.6	25.6	
SEP 29	11450.5	0:29:16.1	12 19 51.30	-2-8-53.6	1.001904	-1.488	1915.7	6.8	167.2	25.8	
OCT 1	11452.5	0:37:9.2	12 27 4.67	-2-55-31.2	1.001343	-1.493	1916.7	6.7	140.9	25.9	
OCT 3	11454.5	0:45:2.3	12 34 19.23	-3-42-2.0	1.000783	-1.497	1917.8	6.6	114.5	26.1	
OCT 5	11456.5	0:52:55.4	12 41 35.11	-4-28-23.1	1.000220	-1.499	1918.9	6.5	88.1	26.2	
OCT 7	11458.5	1:0:48.5	12 48 52.46	-5-14-31.5	0.999653	-1.499	1920.0	6.4	61.7	26.2	
OCT 9	11460.5	1:8:41.6	12 56 11.42	-6-0-24.3	0.999082	-1.497	1921.1	6.3	35.3	26.3	
OCT 11	11462.5	1:16:34.7	13 3 32.13	-6-45-58.3	0.998507	-1.493	1922.2	6.2	8.9	26.3	
OCT 13	11464.5	1:24:27.8	13 10 54.71	-7-31-10.7	0.997928	-1.488	1923.3	6.0	342.5	26.3	
OCT 15	11466.5	1:32:21.0	13 18 19.29	-8-15-58.2	0.997347	-1.480	1924.4	5.9	316.2	26.2	
OCT 17	11468.5	1:40:14.1	13 25 46.01	-9-0-17.7	0.996767	-1.472	1925.5	5.8	289.8	26.1	
OCT 19	11470.5	1:48:7.2	13 33 14.99	-9-44-6.0	0.996190	-1.461	1926.6	5.6	263.4	26.0	
OCT 21	11472.5	1:56:0.3	13 40 46.35	-10-27-20.0	0.995618	-1.449	1927.8	5.4	237.0	25.9	
OCT 23	11474.5	2:3:53.4	13 48 20.25	-11-9-56.6	0.995055	-1.435	1928.8	5.3	210.6	25.7	
OCT 25	11476.5	2:11:46.5	13 55 56.82	-11-51-52.7	0.994503	-1.420	1929.9	5.1	184.3	25.5	
OCT 27	11478.5	2:19:39.6	14 3 36.25	-12-33-5.4	0.993964	-1.403	1931.0	4.9	157.9	25.3	
OCT 29	11480.5	2:27:32.7	14 11 18.67	-13-13-31.9	0.993437	-1.384	1932.0	4.7	131.5	25.0	
OCT 31	11482.5	2:35:25.8	14 19 4.20	-13-53-8.9	0.992920	-1.364	1933.0	4.5	105.1	24.7	
NOV 2	11484.5	2:43:18.9	14 26 52.92	-14-31-53.4	0.992413	-1.341	1934.0	4.3	78.8	24.4	
NOV 4	11486.5	2:51:12.1	14 34 44.91	-15-9-42.0	0.991913	-1.317	1935.0	4.1	52.4	24.1	
NOV 6	11488.5	2:59:5.2	14 42 40.22	-15-46-31.3	0.991418	-1.291	1935.9	3.9	26.0	23.7	
NOV 8	11490.5	3:6:58.3	14 50 38.89	-16-22-18.2	0.990930	-1.263	1936.9	3.7	359.6	23.3	
NOV 10	11492.5	3:14:51.4	14 58 40.93	-16-56-59.1	0.990447	-1.234	1937.8	3.5	333.3	22.8	
NOV 12	11494.5	3:22:44.5	15 6 46.34	-17-30-30.9	0.989970	-1.203	1938.8	3.2	306.9	22.3	
NOV 14	11496.5	3:30:37.6	15 14 55.10	-18-2-50.3	0.989503	-1.171	1939.7	3.0	280.5	21.8	
NOV 16	11498.5	3:38:30.7	15 23 7.19	-18-33-53.8	0.989045	-1.138	1940.6	2.8	254.2	21.3	
NOV 18	11500.5	3:46:23.8	15 31 22.56	-19-3-38.4	0.988600	-1.103	1941.4	2.5	227.8	20.7	
NOV 20	11502.5	3:54:16.9	15 39 41.18	-19-32-1.0	0.988171	-1.068	1942.3	2.3	201.4	20.1	
NOV 22	11504.5	4:2:10.1	15 48 3.02	-19-58-58.5	0.987760	-1.031	1943.1	2.1	175.1	19.5	
NOV 24	11506.5	4:10:3.2	15 56 28.04	-20-24-28.4	0.987369	-0.992	1943.9	1.8	148.7	18.8	
NOV 26	11508.5	4:17:56.3	16 4 56.20	-20-48-27.9	0.987000	-0.953	1944.6	1.6	122.4	18.1	
NOV 28	11510.5	4:25:49.4	16 13 27.41	-21-10-54.5	0.986651	-0.912	1945.3	1.3	96.0	17.4	
NOV 30	11512.5	4:33:42.5	16 22 1.55	-21-31-45.6	0.986321	-0.870	1945.9	1.1	69.6	16.7	
DEC 2	11514.5	4:41:35.6	16 30 38.48	-21-50-58.8	0.986008	-0.826	1946.5	0.8	43.3	15.9	
DEC 4	11516.5	4:49:28.7	16 39 18.04	-22-8-31.7	0.985709	-0.782	1947.1	0.6	16.9	15.1	
DEC 6	11518.5	4:57:21.8	16 48 0.03	-22-24-22.1	0.985424	-0.736	1947.7	0.3	350.6	14.3	
DEC 8	11520.5	5:5:14.9	16 56 44.24	-22-38-28.1	0.985152	-0.690	1948.2	0.0	324.2	13.5	
DEC 10	11522.5	5:13:8.1	17 5 30.41	-22-50-47.6	0.984894	-0.642	1948.8	-0.2	297.9	12.6	
DEC 12	11524.5	5:21:1.2	17 14 18.30	-23-1-19.2	0.984649	-0.594	1949.2	-0.5	271.5	11.8	
DEC 14	11526.5	5:28:54.3	17 23 7.62	-23-10-1.3	0.984420	-0.545	1949.7	-0.7	245.2	10.9	
DEC 16	11528.5	5:36:47.4	17 31 58.12	-23-16-52.7	0.984207	-0.496	1950.1	-1.0	218.8	10.0	
DEC 18	11530.5	5:44:40.5	17 40 49.52	-23-21-52.4	0.984014	-0.446	1950.5	-1.2	192.5	9.0	
DEC 20	11532.5	5:52:33.6	17 49 41.57	-23-24-59.6	0.983842	-0.395	1950.8	-1.5	166.1	8.1	
DEC 22	11534.5	6:0:26.7	17 58 34.03	-23-26-14.1	0.983695	-0.345	1951.1	-1.7	139.8	7.2	
DEC 24	11536.5	6:8:19.8	18 7 26.67	-23-25-35.6	0.983574	-0.294	1951.4	-2.0	113.4	6.2	
DEC 26	11538.5	6:16:12.9	18 16 19.23	-23-23-4.3	0.983479	-0.242	1951.6	-2.2	87.1	5.3	
DEC 28	11540.5	6:24:6.0	18 25 11.49	-23-18-40.3	0.983409	-0.190	1951.7	-2.5	60.7	4.3	
DEC 30	11542.5	6:31:59.2	18 34 3.18	-23-12-24.0	0.983360	-0.138	1951.8	-2.7	34.4	3.3	

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Geocentric Planetary Ephemeris

2000 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 1	11544.5	6:39:52.3	18 42 54.05	-23 -4-16.2	0.983332	-0.085	1951.8	-3.0	8.0	2.4	
JAN 3	11546.5	6:47:45.4	18 51 43.85	-22-54-17.8	0.983322	-0.032	1951.9	-3.2	341.7	1.4	
JAN 5	11548.5	6:55:38.5	19 0 32.30	-22-42-29.9	0.983328	0.021	1951.9	-3.4	315.4	0.4	
JAN 7	11550.5	7: 3:31.6	19 9 19.14	-22-28-54.0	0.983350	0.074	1951.8	-3.6	289.0	-0.5	
JAN 9	11552.5	7:11:24.7	19 18 4.11	-22-13-31.6	0.983388	0.127	1951.7	-3.9	262.7	-1.5	
JAN 11	11554.5	7:19:17.8	19 26 46.95	-21-56-24.5	0.983441	0.179	1951.6	-4.1	236.4	-2.5	
JAN 13	11556.5	7:27:10.9	19 35 27.46	-21-37-34.8	0.983511	0.232	1951.5	-4.3	210.0	-3.4	
JAN 15	11558.5	7:35: 4.0	19 44 5.43	-21-17 -4.5	0.983600	0.283	1951.3	-4.5	183.7	-4.4	
JAN 17	11560.5	7:42:57.2	19 52 40.71	-20-54-56.1	0.983709	0.335	1951.1	-4.7	157.3	-5.3	
JAN 19	11562.5	7:50:50.3	20 1 13.17	-20-31-12.0	0.983841	0.385	1950.8	-4.9	131.0	-6.2	
JAN 21	11564.5	7:58:43.4	20 9 42.70	-20 -5-55.0	0.983998	0.436	1950.5	-5.1	104.7	-7.1	
JAN 23	11566.5	8: 6:36.5	20 18 9.23	-19-39 -7.8	0.984181	0.485	1950.2	-5.3	78.3	-8.0	
JAN 25	11568.5	8:14:29.6	20 26 32.69	-19-10-53.1	0.984388	0.534	1949.8	-5.4	52.0	-8.9	
JAN 27	11570.5	8:22:22.7	20 34 53.07	-18-41-13.7	0.984619	0.583	1949.3	-5.6	25.7	-9.8	
JAN 29	11572.5	8:30:15.8	20 43 10.31	-18-10-12.5	0.984869	0.630	1948.8	-5.8	359.3	-10.6	
JAN 31	11574.5	8:38: 8.9	20 51 24.39	-17-37-52.7	0.985137	0.678	1948.3	-5.9	333.0	-11.5	
FEB 2	11576.5	8:46: 2.0	20 59 35.27	-17 -4-17.4	0.985420	0.724	1947.7	-6.1	306.7	-12.3	
FEB 4	11578.5	8:53:55.2	21 7 42.94	-16-29-29.9	0.985718	0.770	1947.1	-6.2	280.3	-13.1	
FEB 6	11580.5	9: 1:48.3	21 15 47.36	-15-53-33.6	0.986028	0.815	1946.5	-6.3	254.0	-13.9	
FEB 8	11582.5	9: 9:41.4	21 23 48.53	-15-16-31.7	0.986349	0.858	1945.9	-6.4	227.7	-14.7	
FEB 10	11584.5	9:17:34.5	21 31 46.48	-14-38-27.7	0.986683	0.901	1945.2	-6.6	201.3	-15.4	
FEB 12	11586.5	9:25:27.6	21 39 41.24	-13-59-24.9	0.987029	0.942	1944.5	-6.7	175.0	-16.1	
FEB 14	11588.5	9:33:20.7	21 47 32.86	-13-19-26.8	0.987390	0.982	1943.8	-6.8	148.7	-16.8	
FEB 16	11590.5	9:41:13.8	21 55 21.44	-12-38-36.8	0.987767	1.020	1943.1	-6.8	122.3	-17.5	
FEB 18	11592.5	9:49: 6.9	22 3 7.06	-11-56-58.3	0.988163	1.057	1942.3	-6.9	96.0	-18.2	
FEB 20	11594.5	9:57: 0.0	22 10 49.85	-11-14-34.5	0.988579	1.093	1941.5	-7.0	69.7	-18.8	
FEB 22	11596.5	10: 4:53.1	22 18 29.96	-10-31-28.5	0.989014	1.127	1940.6	-7.1	43.3	-19.4	
FEB 24	11598.5	10:12:46.3	22 26 7.54	-9-47-43.5	0.989467	1.160	1939.7	-7.1	17.0	-20.0	
FEB 26	11600.5	10:20:39.4	22 33 42.76	-9 -3-22.5	0.989935	1.192	1938.8	-7.2	350.6	-20.6	
FEB 28	11602.5	10:28:32.5	22 41 15.75	-8-18-28.8	0.990417	1.222	1937.9	-7.2	324.3	-21.1	
MAR 1	11604.5	10:36:25.6	22 48 46.65	-7-33 -5.4	0.990909	1.251	1936.9	-7.2	298.0	-21.6	
MAR 3	11606.5	10:44:18.7	22 56 15.58	-6-47-15.7	0.991409	1.279	1935.9	-7.2	271.6	-22.1	
MAR 5	11608.5	10:52:11.8	23 3 42.66	-6 -1 -2.9	0.991915	1.305	1935.0	-7.2	245.3	-22.6	
MAR 7	11610.5	11: 0: 4.9	23 11 8.03	-5-14-30.1	0.992426	1.329	1934.0	-7.2	218.9	-23.0	
MAR 9	11612.5	11: 7:58.0	23 18 31.81	-4-27-40.6	0.992940	1.352	1933.0	-7.2	192.6	-23.4	
MAR 11	11614.5	11:15:51.1	23 25 54.15	-3-40-37.6	0.993458	1.373	1932.0	-7.2	166.2	-23.8	
MAR 13	11616.5	11:23:44.3	23 33 15.17	-2-53-24.2	0.993981	1.392	1930.9	-7.2	139.9	-24.2	
MAR 15	11618.5	11:31:37.4	23 40 35.03	-2 -6 -3.6	0.994510	1.410	1929.9	-7.2	113.5	-24.5	
MAR 17	11620.5	11:39:30.5	23 47 53.89	-1-18-38.9	0.995047	1.425	1928.9	-7.1	87.1	-24.8	
MAR 19	11622.5	11:47:23.6	23 55 11.93	0-31-12.9	0.995595	1.439	1927.8	-7.1	60.8	-25.1	
MAR 21	11624.5	11:55:16.7	0 2 29.34	0 16 11.5	0.996153	1.451	1926.7	-7.0	34.4	-25.3	
MAR 23	11626.5	12: 3: 9.8	0 9 46.33	1 3 31.7	0.996721	1.461	1925.6	-6.9	8.0	-25.5	
MAR 25	11628.5	12:11: 2.9	0 17 3.09	1 50 45.0	0.997296	1.469	1924.5	-6.9	341.7	-25.7	
MAR 27	11630.5	12:18:56.0	0 24 19.82	2 37 48.7	0.997878	1.476	1923.4	-6.8	315.3	-25.9	
MAR 29	11632.5	12:26:49.1	0 31 36.65	3 24 40.1	0.998462	1.481	1922.3	-6.7	288.9	-26.0	
MAR 31	11634.5	12:34:42.3	0 38 53.75	4 11 16.2	0.999047	1.485	1921.1	-6.6	262.5	-26.1	
APR 2	11636.5	12:42:35.4	0 46 11.27	4 57 34.3	0.999630	1.487	1920.0	-6.5	236.1	-26.2	
APR 4	11638.5	12:50:28.5	0 53 29.33	5 43 31.4	1.000209	1.487	1918.9	-6.4	209.7	-26.3	
APR 6	11640.5	12:58:21.6	1 0 48.06	6 29 4.8	1.000782	1.486	1917.8	-6.2	183.4	-26.3	
APR 8	11642.5	13: 6:14.7	1 8 7.60	7 14 11.4	1.001347	1.482	1916.7	-6.1	157.0	-26.3	
APR 10	11644.5	13:14: 7.8	1 15 28.05	7 58 48.5	1.001907	1.477	1915.7	-6.0	130.6	-26.2	
APR 12	11646.5	13:22: 0.9	1 22 49.52	8 42 53.0	1.002462	1.470	1914.6	-5.8	104.2	-26.2	
APR 14	11648.5	13:29:54.0	1 30 12.13	9 26 22.2	1.003014	1.461	1913.5	-5.7	77.8	-26.1	
APR 16	11650.5	13:37:47.1	1 37 36.01	10 9 13.2	1.003566	1.450	1912.5	-5.5	51.3	-26.0	
APR 18	11652.5	13:45:40.3	1 45 1.32	10 51 23.7	1.004117	1.438	1911.4	-5.3	24.9	-25.8	
APR 20	11654.5	13:53:33.4	1 52 28.23	11 32 51.0	1.004669	1.424	1910.4	-5.2	358.5	-25.6	
APR 22	11656.5	14: 1:26.5	1 59 56.85	12 13 32.9	1.005220	1.408	1909.3	-5.0	332.1	-25.4	
APR 24	11658.5	14: 9:19.6	2 7 27.33	12 53 26.6	1.005769	1.390	1908.3	-4.8	305.7	-25.2	
APR 26	11660.5	14:17:12.7	2 14 59.76	13 32 29.8	1.006313	1.371	1907.3	-4.6	279.3	-24.9	
APR 28	11662.5	14:25: 5.8	2 22 34.22	14 10 39.9	1.006850	1.351	1906.3	-4.4	252.8	-24.6	
APR 30	11664.5	14:32:58.9	2 30 10.79	14 47 54.2	1.007378	1.329	1905.3	-4.2	226.4	-24.3	
MAY 2	11666.5	14:40:52.0	2 37 49.54	15 24 10.1	1.007894	1.306	1904.3	-4.0	200.0	-23.9	
MAY 4	11668.5	14:48:45.1	2 45 30.51	15 59 25.1	1.008395	1.281	1903.3	-3.8	173.5	-23.5	
MAY 6	11670.5	14:56:38.2	2 53 13.71	16 33 36.6	1.008891	1.255	1902.4	-3.6	147.1	-23.1	
MAY 8	11672.5	15: 4:31.4	3 0 59.14	17 6 41.9	1.009350	1.228	1901.5	-3.4	120.6	-22.7	
MAY 10	11674.5	15:12:24.5	3 8 46.78	17 38 38.4	1.009805	1.199	1900.7	-3.2	94.2	-22.2	
MAY 12	11676.5	15:20:17.6	3 16 36.61	18 9 23.6	1.010246	1.168	1899.8	-3.0	67.8	-21.7	
MAY 14	11678.5	15:28:10.7	3 24 28.65	18 38 55.2	1.010678	1.136	1899.0	-2.7	41.3	-21.2	
MAY 16	11680.5	15:36: 3.8	3 32 22.90	19 7 10.8	1.011100	1.102	1898.2	-2.5	14.9	-20.6	
MAY 18	11682.5	15:43:56.9	3 40 19.38	19 34 8.6	1.011514	1.068	1897.5	-2.3	348.4	-20.0	
MAY 20	11684.5	15:51:50.0	3 48 18.07	19 59 46.4	1.011919	1.031	1896.7	-2.1	321.9	-19.4	
MAY 22	11686.5	15:59:43.1	3 56 18.95	20 24 2.5	1.012315	0.994	1896.0	-1.8	295.5	-18.8	
MAY 24	11688.5	16: 7:36.2	4 4 21.97	20 46 54.9	1.012701	0.956	1895.2	-1.6	269.0	-18.2	
MAY 26	11690.5	16:15:29.4	4 12 27.05	21 8 21.7	1.013074	0.917	1894.5	-1.3	242.6	-17.5	
MAY 28	11692.5	16:23:22.5	4 20 34.13	21 28 21.2	1.013432	0.877	1893.9	-1.1	216.1	-16.8	
MAY 30	11694.5	16:31:15.6	4 28 43.11	21 46 51.7	1.013774	0.836	1893.2	-0.9	189.6	-16.1	
JUN 1	11696.5	16:39: 8.7	4 36 53.86	22 3 51.5	1.014095	0.794	1892.6	-0.6	163.2	-15.3	
JUN 3	11698.5	16:47: 1.8	4 45 6.25	22 19 19.1	1.014395	0.752	1892.1	-0.4	136.7	-14.6	
JUN 5	11700.5	16:54:54.9	4 53 20.08	22 33 13.2	1.014671	0.709	1891.6	-0.1	110.2	-13.8	
JUN 7	11702.5	17: 2:48.0	5 1 35.15	22 45 32.4	1.014926	0.664	1891.1	0.1	83.8	-13.0	
JUN 9	11704.5	17:10:41.1	5 9 51.26	22 56 15.5	1.015160	0.619	1890.6	0.3	57.3	-12.2	
JUN 11	11706.5	17:18:34.2	5 18 8.26	23 5 21.5	1.015377	0.573	1890.2	0.6	30.8	-11.4	
JUN 13	11708.5	17:26:27.4	5 26 25.99	23 12 49.8	1.015579	0.526	1889.9	0.8	4.4	-10.5	
JUN 15	11710.5	17:34:20.5	5 34 44.31	23 18 39.6	1.015766	0.479	1889.5	1.1	337.9	-9.7	
JUN 17	11712.5	17:42:13.6	5 43 3.05	23 22 50.8	1.015939	0.431	1889.2	1.3	311.4	-8.8	
JUN 19	11714.5	17:50: 6.7	5 51 22.06	23 25 23.0	1.016100	0.382	1888.9	1.5	284.9	-7.9	
JUN 21	11716.5	17:57:59.8	5 59 41.15	23 26 16.2	1.016246	0.333	1888.6	1.8	258.5	-7.1	
JUN 23	11718.5	18: 5:52.9	6 8 0.17	23 25 30.2	1.016377	0.284	1888.4	2.0	232.0	-6.2	
JUN 25	11720.5	18:13:46.0	6 16 18.94	23 23 5.3	1.016492	0.235	1888.2	2.2	205.5	-5.3	
JUN 27	11722.5	18:21:39.1	6 24 37.30	23 19 1.7	1.016588	0.185	1888.0	2.5	179.0	-4.	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 1	11726.5	18:37:25.3	6 41 12.04	23 6 0.1	1.016713	0.086	1887.8	2.9	126.1	-2.6	
JUL 3	11728.5	18:45:18.5	6 49 28.00	22 57 3.6	1.016738	0.036	1887.7	3.1	99.6	-1.7	
JUL 5	11730.5	18:53:11.6	6 57 42.72	22 46 31.2	1.016738	-0.013	1887.7	3.3	73.1	-0.7	
JUL 7	11732.5	19: 1: 4.7	7 5 56.00	22 34 23.7	1.016714	-0.063	1887.8	3.6	46.7	0.2	
JUL 9	11734.5	19: 8:57.8	7 14 7.67	22 20 42.4	1.016670	-0.113	1887.8	3.8	20.2	1.1	
JUL 11	11736.5	19:16:50.9	7 22 17.61	22 5 28.6	1.016607	-0.163	1888.0	4.0	353.7	2.0	
JUL 13	11738.5	19:24:44.0	7 30 25.70	21 48 43.8	1.016527	-0.213	1888.1	4.2	327.3	2.9	
JUL 15	11740.5	19:32:37.1	7 38 31.85	21 30 29.5	1.016433	-0.263	1888.3	4.4	300.8	3.7	
JUL 17	11742.5	19:40:30.2	7 46 35.96	21 10 47.6	1.016324	-0.313	1888.5	4.6	274.3	4.6	
JUL 19	11744.5	19:48:23.3	7 54 37.95	20 49 39.6	1.016201	-0.362	1888.7	4.7	247.9	5.5	
JUL 21	11746.5	19:56:16.5	8 2 37.78	20 27 7.5	1.016064	-0.411	1889.0	4.9	221.4	6.4	
JUL 23	11748.5	20: 4: 9.6	8 10 35.38	20 3 13.0	1.015912	-0.459	1889.2	5.1	195.0	7.2	
JUL 25	11750.5	20:12: 2.7	8 18 30.74	19 37 58.1	1.015744	-0.507	1889.6	5.3	168.5	8.1	
JUL 27	11752.5	20:19:55.8	8 26 23.83	19 11 24.7	1.015557	-0.553	1889.9	5.4	142.0	8.9	
JUL 29	11754.5	20:27:48.9	8 34 14.60	18 43 35.1	1.015348	-0.599	1890.3	5.6	115.6	9.7	
JUL 31	11756.5	20:35:42.0	8 42 2.99	18 14 31.5	1.015117	-0.645	1890.7	5.7	89.1	10.5	
AUG 2	11758.5	20:43:35.1	8 49 48.93	17 44 16.4	1.014861	-0.689	1891.2	5.9	62.7	11.3	
AUG 4	11760.5	20:51:28.2	8 57 32.40	17 12 52.0	1.014583	-0.734	1891.7	6.0	36.2	12.1	
AUG 6	11762.5	20:59:21.3	9 5 13.39	16 40 20.8	1.014285	-0.777	1892.3	6.1	9.8	12.9	
AUG 8	11764.5	21: 7:14.5	9 12 51.93	16 6 45.2	1.013969	-0.819	1892.9	6.3	343.3	13.6	
AUG 10	11766.5	21:15: 7.6	9 20 28.06	15 32 7.7	1.013637	-0.861	1893.5	6.4	316.9	14.3	
AUG 12	11768.5	21:23: 0.7	9 28 1.85	14 56 30.9	1.013293	-0.902	1894.1	6.5	290.5	15.1	
AUG 14	11770.5	21:30:53.8	9 35 33.37	14 19 57.0	1.012937	-0.942	1894.8	6.6	264.0	15.8	
AUG 16	11772.5	21:38:46.9	9 43 2.71	13 42 28.7	1.012571	-0.982	1895.5	6.7	237.6	16.4	
AUG 18	11774.5	21:46:40.0	9 50 29.97	13 4 8.3	1.012195	-1.020	1896.2	6.8	211.1	17.1	
AUG 20	11776.5	21:54:33.1	9 57 55.27	12 24 58.2	1.011810	-1.056	1896.9	6.9	184.7	17.7	
AUG 22	11778.5	22: 2:26.2	10 5 18.74	11 45 0.6	1.011413	-1.092	1897.7	6.9	158.3	18.3	
AUG 24	11780.5	22:10:19.3	10 12 40.51	11 4 18.1	1.011004	-1.126	1898.4	7.0	131.8	18.9	
AUG 26	11782.5	22:18:12.4	10 20 0.67	10 22 53.2	1.010581	-1.159	1899.2	7.1	105.4	19.5	
AUG 28	11784.5	22:26: 5.6	10 27 19.32	9 40 48.4	1.010141	-1.190	1900.0	7.1	79.0	20.1	
AUG 30	11786.5	22:33:58.7	10 34 36.53	8 58 6.6	1.009683	-1.220	1900.9	7.2	52.6	20.6	
SEP 1	11788.5	22:41:51.8	10 41 52.40	8 14 50.4	1.009208	-1.248	1901.8	7.2	26.2	21.1	
SEP 3	11790.5	22:49:44.9	10 49 7.04	7 31 2.5	1.008717	-1.275	1902.7	7.2	359.7	21.6	
SEP 5	11792.5	22:57:38.0	10 56 20.58	6 46 45.6	1.008213	-1.301	1903.7	7.2	333.3	22.1	
SEP 7	11794.5	23: 5:31.1	11 3 33.15	6 2 2.4	1.007698	-1.326	1904.6	7.2	306.9	22.6	
SEP 9	11796.5	23:13:24.2	11 10 44.90	5 16 55.5	1.007176	-1.349	1905.6	7.2	280.5	23.0	
SEP 11	11798.5	23:21:17.3	11 17 55.98	4 31 27.6	1.006647	-1.370	1906.6	7.2	254.1	23.4	
SEP 13	11800.5	23:29:10.4	11 25 6.57	3 45 41.2	1.006115	-1.391	1907.6	7.2	227.7	23.8	
SEP 15	11802.5	23:37: 3.6	11 32 16.84	2 59 38.9	1.005580	-1.409	1908.7	7.2	201.3	24.1	
SEP 17	11804.5	23:44:56.7	11 39 26.99	2 13 23.1	1.005044	-1.426	1909.7	7.2	174.9	24.4	
SEP 19	11806.5	23:52:49.8	11 46 37.21	1 26 56.1	1.004506	-1.442	1910.7	7.1	148.5	24.7	
SEP 21	11808.5	0: 0:42.9	11 53 47.68	0 40 20.6	1.003965	-1.455	1911.7	7.1	122.1	25.0	
SEP 23	11810.5	0: 8:36.0	12 0 58.58	0 -6-20.8	1.003419	-1.467	1912.8	7.0	95.7	25.3	
SEP 25	11812.5	0:16:29.1	12 8 10.05	0 -53 -5.5	1.002866	-1.476	1913.8	7.0	69.3	25.5	
SEP 27	11814.5	0:24:22.2	12 15 22.22	-1-39-50.4	1.002304	-1.484	1914.9	6.9	42.9	25.7	
SEP 29	11816.5	0:32:15.3	12 22 35.23	-2-26-32.8	1.001734	-1.490	1916.0	6.8	16.5	25.9	
OCT 1	11818.5	0:40: 8.4	12 29 49.21	-3-13 -9.6	1.001155	-1.495	1917.1	6.7	350.1	26.0	
OCT 3	11820.5	0:48: 1.6	12 37 4.32	-3-59-38.0	1.000572	-1.498	1918.2	6.6	323.7	26.1	
OCT 5	11822.5	0:55:54.7	12 44 20.70	-4-45-54.9	0.999984	-1.499	1919.3	6.5	297.3	26.2	
OCT 7	11824.5	1: 3:47.8	12 51 38.49	-5-31-57.4	0.999396	-1.498	1920.5	6.4	270.9	26.3	
OCT 9	11826.5	1:11:40.9	12 58 57.86	-6-17-42.4	0.998810	-1.496	1921.6	6.3	244.5	26.3	
OCT 11	11828.5	1:19:34.0	13 6 18.96	-7 -3 -7.2	0.998228	-1.492	1922.7	6.1	218.2	26.3	
OCT 13	11830.5	1:27:27.1	13 13 41.97	-7-48 -8.7	0.997652	-1.487	1923.8	6.0	191.8	26.3	
OCT 15	11832.5	1:35:20.2	13 21 7.08	-8-32-44.3	0.997085	-1.480	1924.9	5.8	165.4	26.2	
OCT 17	11834.5	1:43:13.3	13 28 34.47	-9-16-51.1	0.996525	-1.471	1926.0	5.7	139.0	26.1	
OCT 19	11836.5	1:51: 6.4	13 36 4.30	-10 0-26.3	0.995974	-1.460	1927.1	5.5	112.6	26.0	
OCT 21	11838.5	1:58:59.5	13 43 36.73	-10-43-26.8	0.995429	-1.447	1928.1	5.4	86.3	25.8	
OCT 23	11840.5	2: 6:52.7	13 51 11.86	-11-25-49.6	0.994888	-1.432	1929.2	5.2	59.9	25.7	
OCT 25	11842.5	2:14:45.8	13 58 49.81	-12 -7-31.4	0.994350	-1.416	1930.2	5.0	33.5	25.4	
OCT 27	11844.5	2:22:38.9	14 6 30.66	-12-48-28.9	0.993813	-1.397	1931.3	4.8	7.1	25.2	
OCT 29	11846.5	2:30:32.0	14 14 14.52	-13-28-38.7	0.993278	-1.377	1932.3	4.6	340.8	24.9	
OCT 31	11848.5	2:38:25.1	14 22 1.43	-14 -7-57.6	0.992745	-1.355	1933.3	4.4	314.4	24.6	
NOV 2	11850.5	2:46:18.2	14 29 51.45	-14-46-22.2	0.992218	-1.332	1934.4	4.2	288.0	24.3	
NOV 4	11852.5	2:54:11.3	14 37 44.64	-15-23-48.9	0.991697	-1.307	1935.4	4.0	261.6	23.9	
NOV 6	11854.5	3: 2: 4.4	14 45 41.04	-16 0-14.6	0.991186	-1.281	1936.4	3.8	235.3	23.5	
NOV 8	11856.5	3: 9:57.5	14 53 40.71	-16-35-36.0	0.990687	-1.253	1937.3	3.6	208.9	23.1	
NOV 10	11858.5	3:17:50.7	15 1 43.69	-17 -9-49.9	0.990203	-1.224	1938.3	3.4	182.5	22.6	
NOV 12	11860.5	3:25:43.8	15 9 50.05	-17-42-53.1	0.989735	-1.194	1939.2	3.2	156.2	22.1	
NOV 14	11862.5	3:33:36.9	15 17 59.82	-18-14-42.8	0.989285	-1.162	1940.1	2.9	129.8	21.6	
NOV 16	11864.5	3:41:30.0	15 26 13.02	-18-45-16.0	0.988854	-1.128	1940.9	2.7	103.4	21.1	
NOV 18	11866.5	3:49:23.1	15 34 29.64	-19-14-29.8	0.988439	-1.093	1941.8	2.5	77.1	20.5	
NOV 20	11868.5	3:57:16.2	15 42 49.65	-19-42-21.1	0.988039	-1.057	1942.5	2.2	50.7	19.9	
NOV 22	11870.5	4: 5: 9.3	15 51 12.97	-20 -8-46.9	0.987652	-1.018	1943.3	2.0	24.3	19.2	
NOV 24	11872.5	4:13: 2.4	15 59 39.53	-20-33-44.2	0.987275	-0.979	1944.0	1.7	358.0	18.5	
NOV 26	11874.5	4:20:55.5	16 8 9.20	-20-57-10.2	0.986910	-0.938	1944.8	1.5	331.6	17.8	
NOV 28	11876.5	4:28:48.7	16 16 41.83	-21-19 -2.2	0.986555	-0.896	1945.5	1.2	305.3	17.1	
NOV 30	11878.5	4:36:41.8	16 25 17.24	-21-39-17.4	0.986211	-0.853	1946.1	1.0	278.9	16.4	
DEC 2	11880.5	4:44:34.9	16 33 55.26	-21-57-53.5	0.985881	-0.809	1946.8	0.7	252.5	15.6	
DEC 4	11882.5	4:52:28.0	16 42 35.69	-22-14-48.0	0.985566	-0.764	1947.4	0.5	226.2	14.8	
DEC 6	11884.5	5: 0:21.1	16 51 18.34	-22-29-58.8	0.985269	-0.719	1948.0	0.2	199.8	14.0	
DEC 8	11886.5	5: 8:14.2	17 0 3.02	-22-43-24.0	0.984991	-0.673	1948.6	-0.1	173.5	13.2	
DEC 10	11888.5	5:16: 7.3	17 8 49.53	-22-55 -2.1	0.984735	-0.625	1949.1	-0.3	147.1	12.3	
DEC 12	11890.5	5:24: 0.4	17 17 37.67	-23 -4-51.5	0.984504	-0.578	1949.5	-0.6	120.8	11.4	
DEC 14	11892.5	5:31:53.5	17 26 27.23	-23-12-51.3	0.984298	-0.529	1949.9	-0.8	94.4	10.5	
DEC 16	11894.5	5:39:46.6	17 35 17.99	-23-19 -0.3	0.984116	-0.480	1950.3	-1.1	68.1	9.6	
DEC 18	11896.5	5:47:39.8	17 44 9.72	-23-23-17.6	0.983956	-0.429	1950.6	-1.3	41.7	8.7	
DEC 20	11898.5	5:55:32.9	17 53 2.15	-23-25-42.6	0.983815	-0.379	1950.9	-1.6	15.4	7.8	
DEC 22	11900.5	6: 3:26.0	18 1 55.02	-23-26-14.7	0.983693	-0.327	1951.1	-1.8	349.0	6.8	
DEC 24	11902.5	6:11:19.1	18 10 48.03	-23-24-53.9	0.983586	-0.275	1951.3	-2.1	322.7	5.9	
DEC 26	11904.5	6:19:12.2	18 19 40.88	-23-21-40.2	0.983495	-0.223	1951.5	-2.3	296.3	4.9	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 1	11910.5	6:42:51.5	18 46 15.39	-23 0 -45.7	0.983316	-0.065	1951.9	-3.0	217.3	2.0	
JAN 3	11912.5	6:50:44.6	18 55 4.60	-22-50 -5.7	0.983291	-0.012	1951.9	-3.3	191.0	1.0	
JAN 5	11914.5	6:58:37.8	19 3 52.23	-22-37-36.7	0.983287	0.041	1951.9	-3.5	164.6	0.1	
JAN 7	11916.5	7: 6:30.9	19 12 38.07	-22-23-20.2	0.983306	0.093	1951.9	-3.7	138.3	-0.9	
JAN 9	11918.5	7:14:24.0	19 21 21.91	-22 -7-17.9	0.983350	0.145	1951.8	-3.9	112.0	-1.9	
JAN 11	11920.5	7:22:17.1	19 30 3.58	-21-49-31.9	0.983420	0.197	1951.7	-4.2	85.6	-2.8	
JAN 13	11922.5	7:30:10.2	19 38 42.93	-21-30 -4.2	0.983517	0.249	1951.5	-4.4	59.3	-3.8	
JAN 15	11924.5	7:38: 3.3	19 47 19.80	-21 -8-56.8	0.983638	0.300	1951.2	-4.6	32.9	-4.7	
JAN 17	11926.5	7:45:56.4	19 55 54.09	-20-46-12.0	0.983782	0.351	1951.0	-4.8	6.6	-5.6	
JAN 19	11928.5	7:53:49.5	20 4 25.67	-20-21-52.3	0.983944	0.402	1950.6	-5.0	340.3	-6.6	
JAN 21	11930.5	8: 1:42.6	20 12 54.38	-19-56 -0.4	0.984124	0.453	1950.3	-5.1	313.9	-7.5	
JAN 23	11932.5	8: 9:35.8	20 21 20.12	-19-28-39.0	0.984319	0.503	1949.9	-5.3	287.6	-8.4	
JAN 25	11934.5	8:17:28.9	20 29 42.76	-18-59-51.1	0.984528	0.553	1949.5	-5.5	261.3	-9.2	
JAN 27	11936.5	8:25:22.0	20 38 2.20	-18-29-39.7	0.984752	0.601	1949.0	-5.7	234.9	-10.1	
JAN 29	11938.5	8:33:15.1	20 46 18.37	-17-58 -8.0	0.984989	0.649	1948.6	-5.8	208.6	-11.0	
JAN 31	11940.5	8:41: 8.2	20 54 31.23	-17-25-19.0	0.985242	0.696	1948.1	-6.0	182.3	-11.8	
FEB 2	11942.5	8:49: 1.3	21 2 40.74	-16-51-16.1	0.985511	0.742	1947.5	-6.1	155.9	-12.6	
FEB 4	11944.5	8:56:54.4	21 10 46.93	-16-16 -2.6	0.985798	0.787	1947.0	-6.2	129.6	-13.4	
FEB 6	11946.5	9: 4:47.5	21 18 49.80	-15-39-41.8	0.986105	0.831	1946.4	-6.4	103.3	-14.2	
FEB 8	11948.5	9:12:40.6	21 26 49.41	-15 -2-17.1	0.986434	0.873	1945.7	-6.5	76.9	-14.9	
FEB 10	11950.5	9:20:33.8	21 34 45.84	-14-23-51.7	0.986786	0.914	1945.0	-6.6	50.6	-15.7	
FEB 12	11952.5	9:28:26.9	21 42 39.19	-13-44-28.7	0.987159	0.955	1944.3	-6.7	24.3	-16.4	
FEB 14	11954.5	9:36:20.0	21 50 29.57	-13 -4-11.1	0.987551	0.994	1943.5	-6.8	357.9	-17.1	
FEB 16	11956.5	9:44:13.1	21 58 17.10	-12-23 -2.4	0.987960	1.032	1942.7	-6.9	331.6	-17.8	
FEB 18	11958.5	9:52: 6.2	22 6 1.85	-11-41 -5.7	0.988382	1.069	1941.9	-7.0	305.3	-18.4	
FEB 20	11960.5	9:59:59.3	22 13 43.91	-10-58-24.4	0.988815	1.105	1941.0	-7.0	278.9	-19.0	
FEB 22	11962.5	10: 7:52.4	22 21 23.36	-10-15 -1.9	0.989258	1.139	1940.2	-7.1	252.6	-19.6	
FEB 24	11964.5	10:15:45.5	22 29 0.30	-9-31 -1.5	0.989709	1.172	1939.3	-7.1	226.3	-20.2	
FEB 26	11966.5	10:23:38.6	22 36 34.84	-8-46-26.7	0.990167	1.204	1938.4	-7.2	199.9	-20.8	
FEB 28	11968.5	10:31:31.7	22 44 7.08	-8 -1-20.6	0.990632	1.234	1937.5	-7.2	173.6	-21.3	
MAR 2	11970.5	10:39:24.9	22 51 37.16	-7-15-46.7	0.991105	1.262	1936.5	-7.2	147.2	-21.8	
MAR 4	11972.5	10:47:18.0	22 59 5.21	-6-29-48.1	0.991588	1.289	1935.6	-7.2	120.9	-22.3	
MAR 6	11974.5	10:55:11.1	23 6 31.38	-5-43-28.3	0.992081	1.314	1934.6	-7.2	94.5	-22.7	
MAR 8	11976.5	11: 3: 4.2	23 13 55.80	-4-56-50.4	0.992587	1.337	1933.6	-7.2	68.2	-23.2	
MAR 10	11978.5	11:10:57.3	23 21 18.67	-4 -9-57.3	0.993108	1.358	1932.6	-7.2	41.8	-23.6	
MAR 12	11980.5	11:18:50.4	23 28 40.20	-3-22-51.9	0.993642	1.378	1931.6	-7.2	15.5	-23.9	
MAR 14	11982.5	11:26:43.5	23 36 0.58	-2-35-36.8	0.994189	1.396	1930.5	-7.2	349.1	-24.3	
MAR 16	11984.5	11:34:36.6	23 43 20.01	-1-48-14.9	0.994746	1.413	1929.5	-7.1	322.7	-24.6	
MAR 18	11986.5	11:42:29.7	23 50 38.65	-1 0-49.2	0.995309	1.428	1928.4	-7.1	296.4	-24.9	
MAR 20	11988.5	11:50:22.9	23 57 56.65	0-13-22.4	0.995877	1.441	1927.3	-7.0	270.0	-25.2	
MAR 22	11990.5	11:58:16.0	0 5 14.15	0 34 2.2	0.996446	1.453	1926.2	-7.0	243.6	-25.4	
MAR 24	11992.5	12: 6: 9.1	0 12 31.31	1 21 21.9	0.997015	1.463	1925.1	-6.9	217.3	-25.6	
MAR 26	11994.5	12:14: 2.2	0 19 48.26	2 8 33.5	0.997582	1.471	1924.0	-6.8	190.9	-25.8	
MAR 28	11996.5	12:21:55.3	0 27 5.15	2 55 34.2	0.998147	1.478	1922.9	-6.7	164.5	-25.9	
MAR 30	11998.5	12:29:48.4	0 34 22.11	3 42 21.0	0.998709	1.483	1921.8	-6.6	138.1	-26.1	
APR 1	12000.5	12:37:41.5	0 41 39.29	4 28 50.8	0.999270	1.486	1920.7	-6.5	111.8	-26.2	
APR 3	12002.5	12:45:34.6	0 48 56.82	5 15 0.7	0.999830	1.486	1919.6	-6.4	85.4	-26.2	
APR 5	12004.5	12:53:27.7	0 56 14.84	6 0 47.9	1.000393	1.485	1918.6	-6.3	59.0	-26.3	
APR 7	12006.5	13: 1:20.9	1 3 33.51	6 46 9.6	1.000958	1.482	1917.5	-6.2	32.6	-26.3	
APR 9	12008.5	13: 9:14.0	1 10 53.03	7 31 3.3	1.001529	1.478	1916.4	-6.0	6.2	-26.3	
APR 11	12010.5	13:17: 7.1	1 18 13.59	8 15 26.6	1.002102	1.471	1915.3	-5.9	339.8	-26.2	
APR 13	12012.5	13:25: 0.2	1 25 35.35	8 59 17.0	1.002678	1.463	1914.2	-5.8	313.4	-26.2	
APR 15	12014.5	13:32:53.3	1 32 58.45	9 42 31.8	1.003252	1.454	1913.1	-5.6	287.0	-26.0	
APR 17	12016.5	13:40:46.4	1 40 23.01	10 25 8.5	1.003823	1.442	1912.0	-5.4	260.6	-25.9	
APR 19	12018.5	13:48:39.5	1 47 49.14	11 7 4.2	1.004387	1.430	1910.9	-5.3	234.2	-25.7	
APR 21	12020.5	13:56:32.6	1 55 16.95	11 48 16.3	1.004944	1.415	1909.9	-5.1	207.7	-25.6	
APR 23	12022.5	14: 4:25.7	2 2 46.53	12 28 42.2	1.005489	1.400	1908.8	-4.9	181.3	-25.3	
APR 25	12024.5	14:12:18.8	2 10 17.97	13 8 18.7	1.006023	1.382	1907.8	-4.7	154.9	-25.1	
APR 27	12026.5	14:20:12.0	2 17 51.32	13 47 3.4	1.006544	1.363	1906.8	-4.6	128.5	-24.8	
APR 29	12028.5	14:28: 5.1	2 25 26.64	14 24 53.6	1.007053	1.342	1905.9	-4.4	102.1	-24.5	
MAY 1	12030.5	14:35:58.2	2 33 3.97	15 1 46.3	1.007552	1.320	1904.9	-4.2	75.6	-24.1	
MAY 3	12032.5	14:43:51.3	2 40 43.34	15 37 38.9	1.008041	1.296	1904.0	-4.0	49.2	-23.8	
MAY 5	12034.5	14:51:44.4	2 48 24.82	16 12 28.9	1.008524	1.270	1903.1	-3.7	22.8	-23.4	
MAY 7	12036.5	14:59:37.5	2 56 8.51	16 46 14.0	1.009002	1.242	1902.2	-3.5	356.3	-22.9	
MAY 9	12038.5	15: 7:30.6	3 3 54.46	17 18 52.0	1.009474	1.214	1901.3	-3.3	329.9	-22.5	
MAY 11	12040.5	15:15:23.7	3 11 42.73	17 50 20.7	1.009941	1.184	1900.4	-3.1	303.4	-22.0	
MAY 13	12042.5	15:23:16.8	3 19 33.35	18 20 37.9	1.010400	1.152	1899.6	-2.9	277.0	-21.5	
MAY 15	12044.5	15:31:10.0	3 27 26.30	18 49 41.2	1.010848	1.120	1898.7	-2.7	250.5	-21.0	
MAY 17	12046.5	15:39: 3.1	3 35 21.58	19 17 28.5	1.011285	1.086	1897.9	-2.4	224.1	-20.4	
MAY 19	12048.5	15:46:56.2	3 43 19.16	19 43 57.6	1.011707	1.051	1897.1	-2.2	197.6	-19.8	
MAY 21	12050.5	15:54:49.3	3 51 19.00	20 9 6.2	1.012111	1.016	1896.3	-2.0	171.2	-19.2	
MAY 23	12052.5	16: 2:42.4	3 59 21.02	20 32 52.3	1.012497	0.979	1895.6	-1.7	144.7	-18.6	
MAY 25	12054.5	16:10:35.5	4 7 25.13	20 55 13.8	1.012863	0.941	1894.9	-1.5	118.2	-17.9	
MAY 27	12056.5	16:18:28.6	4 15 31.19	21 16 8.8	1.013208	0.902	1894.3	-1.3	91.8	-17.2	
MAY 29	12058.5	16:26:21.7	4 23 39.07	21 35 35.4	1.013534	0.862	1893.7	-1.0	65.3	-16.5	
MAY 31	12060.5	16:34:14.8	4 31 48.63	21 53 31.7	1.013843	0.820	1893.1	-0.8	38.9	-15.8	
JUN 2	12062.5	16:42: 8.0	4 39 59.77	22 9 56.3	1.014137	0.778	1892.6	-0.5	12.4	-15.0	
JUN 4	12064.5	16:50: 1.1	4 48 12.39	22 24 47.9	1.014419	0.734	1892.0	-0.3	345.9	-14.3	
JUN 6	12066.5	16:57:54.2	4 56 26.37	22 38 5.2	1.014689	0.690	1891.5	-0.1	319.4	-13.5	
JUN 8	12068.5	17: 5:47.3	5 4 41.60	22 49 47.4	1.014948	0.645	1891.0	0.2	293.0	-12.7	
JUN 10	12070.5	17:13:40.4	5 12 57.94	22 59 53.5	1.015194	0.599	1890.6	0.4	266.5	-11.9	
JUN 12	12072.5	17:21:33.5	5 21 15.24	23 8 22.7	1.015426	0.553	1890.2	0.7	240.0	-11.1	
JUN 14	12074.5	17:29:26.6	5 29 33.33	23 15 14.1	1.015643	0.506	1889.7	0.9	213.6	-10.2	
JUN 16	12076.5	17:37:19.7	5 37 52.06	23 20 27.3	1.015841	0.459	1889.4	1.1	187.1	-9.4	
JUN 18	12078.5	17:45:12.8	5 46 11.24	23 24 1.6	1.016020	0.411	1889.0	1.4	160.6	-8.5	
JUN 20	12080.5	17:53: 5.9	5 54 30.68	23 25 56.9	1.016176	0.363	1888.8	1.6	134.1	-7.6	
JUN 22	12082.5	18: 0:59.1	6 2 50.16	23 26 12.9	1.016309	0.315	1888.5	1.9	107.7	-6.7	
JUN 24	12084.5	18: 8:52.2	6 11 9.45	23 24 49.8	1.016416	0.266	1888.3	2.1	81.2	-5.8	
JUN 26	12086.5	18:16:45.3	6 19 28.29	23 21 47.7	1.016500	0.217	1888.2	2.3	54.7	-4.9	
JUN 28	12088.5	18:24:38.4	6 27 46.46	23 17 6.8	1.016562	0.167	1888.0	2.5	28.2	-4.0	</

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	12092.5	18:40:24.6	6 44 20.14	23 2 51.0	1.016631	0.068	1887.9	3.0	335.3	-2.2	
JUL 4	12094.5	18:48:17.7	6 52 35.34	22 53 17.8	1.016642	0.017	1887.9	3.2	308.8	-1.3	
JUL 6	12096.5	18:56:10.8	7 0 49.25	22 42 9.0	1.016639	-0.033	1887.9	3.4	282.4	-0.4	
JUL 8	12098.5	19: 4: 3.9	7 9 1.74	22 29 25.9	1.016622	-0.083	1887.9	3.6	255.9	0.5	
JUL 10	12100.5	19:11:57.1	7 17 12.68	22 15 9.5	1.016590	-0.134	1888.0	3.8	229.4	1.4	
JUL 12	12102.5	19:19:50.2	7 25 21.96	21 59 21.2	1.016543	-0.184	1888.1	4.0	203.0	2.3	
JUL 14	12104.5	19:27:43.3	7 33 29.47	21 42 2.4	1.016479	-0.233	1888.2	4.2	176.5	3.2	
JUL 16	12106.5	19:35:36.4	7 41 35.12	21 23 14.5	1.016395	-0.283	1888.3	4.4	150.0	4.1	
JUL 18	12108.5	19:43:29.5	7 49 38.80	21 2 59.2	1.016290	-0.331	1888.5	4.6	123.6	5.0	
JUL 20	12110.5	19:51:22.6	7 57 40.40	20 41 18.4	1.016162	-0.380	1888.8	4.8	97.1	5.8	
JUL 22	12112.5	19:59:15.7	8 5 39.78	20 18 14.0	1.016010	-0.427	1889.1	5.0	70.6	6.7	
JUL 24	12114.5	20: 7: 8.8	8 13 36.83	19 53 48.1	1.015833	-0.475	1889.4	5.2	44.2	7.5	
JUL 26	12116.5	20:15: 1.9	8 21 31.46	19 28 2.6	1.015633	-0.522	1889.8	5.3	17.7	8.4	
JUL 28	12118.5	20:22:55.1	8 29 23.61	19 0 59.7	1.015413	-0.569	1890.2	5.5	351.3	9.2	
JUL 30	12120.5	20:30:48.2	8 37 13.29	18 32 41.8	1.015177	-0.615	1890.6	5.6	324.8	10.0	
AUG 1	12122.5	20:38:41.3	8 45 0.48	18 3 11.0	1.014926	-0.660	1891.1	5.8	298.4	10.8	
AUG 3	12124.5	20:46:34.4	8 52 45.20	17 32 29.8	1.014662	-0.705	1891.6	5.9	271.9	11.6	
AUG 5	12126.5	20:54:27.5	9 0 27.48	17 0 40.5	1.014385	-0.750	1892.1	6.1	245.5	12.4	
AUG 7	12128.5	21: 2:20.6	9 8 7.36	16 27 45.2	1.014097	-0.793	1892.6	6.2	219.0	13.1	
AUG 9	12130.5	21:10:13.7	9 15 44.90	15 53 46.4	1.013797	-0.836	1893.2	6.3	192.6	13.9	
AUG 11	12132.5	21:18: 6.8	9 23 20.17	15 18 46.2	1.013484	-0.877	1893.8	6.4	166.1	14.6	
AUG 13	12134.5	21:25:59.9	9 30 53.26	14 42 47.0	1.013156	-0.917	1894.4	6.5	139.7	15.3	
AUG 15	12136.5	21:33:53.0	9 38 24.23	14 5 51.2	1.012813	-0.957	1895.0	6.6	113.2	16.0	
AUG 17	12138.5	21:41:46.2	9 45 53.13	13 28 1.3	1.012452	-0.994	1895.7	6.7	86.8	16.7	
AUG 19	12140.5	21:49:39.3	9 53 20.02	12 49 20.0	1.012070	-1.031	1896.4	6.8	60.4	17.3	
AUG 21	12142.5	21:57:32.4	10 0 44.93	12 9 49.9	1.011668	-1.067	1897.2	6.9	33.9	18.0	
AUG 23	12144.5	22: 5:25.5	10 8 7.92	11 29 33.7	1.011247	-1.101	1898.0	7.0	7.5	18.6	
AUG 25	12146.5	22:13:18.6	10 15 29.10	10 48 33.9	1.010809	-1.135	1898.8	7.0	341.1	19.2	
AUG 27	12148.5	22:21:11.7	10 22 48.57	10 6 53.4	1.010358	-1.167	1899.6	7.1	314.7	19.7	
AUG 29	12150.5	22:29: 4.8	10 30 6.45	9 24 34.8	1.009896	-1.198	1900.5	7.1	288.2	20.3	
AUG 31	12152.5	22:36:57.9	10 37 22.87	8 41 40.6	1.009424	-1.228	1901.4	7.2	261.8	20.8	
SEP 2	12154.5	22:44:51.0	10 44 37.98	7 58 13.3	1.008946	-1.257	1902.3	7.2	235.4	21.3	
SEP 4	12156.5	22:52:44.2	10 51 51.94	7 14 15.4	1.008462	-1.284	1903.2	7.2	209.0	21.8	
SEP 6	12158.5	23: 0:37.3	10 59 4.91	6 29 49.4	1.007973	-1.310	1904.1	7.2	182.6	22.3	
SEP 8	12160.5	23: 8:30.4	11 6 17.08	5 44 57.6	1.007478	-1.334	1905.1	7.2	156.2	22.7	
SEP 10	12162.5	23:16:23.5	11 13 28.61	4 59 42.5	1.006978	-1.356	1906.0	7.2	129.7	23.1	
SEP 12	12164.5	23:24:16.6	11 20 39.67	4 14 6.5	1.006469	-1.377	1907.0	7.2	103.3	23.5	
SEP 14	12166.5	23:32: 9.7	11 27 50.41	3 28 12.3	1.005952	-1.396	1908.0	7.2	76.9	23.9	
SEP 16	12168.5	23:40: 2.8	11 35 0.95	2 42 2.6	1.005423	-1.413	1909.0	7.2	50.5	24.2	
SEP 18	12170.5	23:47:55.9	11 42 11.41	1 55 40.1	1.004881	-1.429	1910.0	7.2	24.1	24.6	
SEP 20	12172.5	23:55:49.0	11 49 21.94	1 9 7.8	1.004327	-1.443	1911.0	7.1	357.7	24.8	
SEP 22	12174.5	0: 3:42.2	11 56 32.67	0 22 28.5	1.003763	-1.455	1912.1	7.1	331.3	25.1	
SEP 24	12176.5	0:11:35.3	12 3 43.74	0-24-15.0	1.003192	-1.466	1913.2	7.0	304.9	25.4	
SEP 26	12178.5	0:19:28.4	12 10 55.32	-1-10-59.8	1.002616	-1.476	1914.3	6.9	278.5	25.6	
SEP 28	12180.5	0:27:21.5	12 18 7.55	-1-57-43.0	1.002038	-1.483	1915.4	6.8	252.1	25.8	
SEP 30	12182.5	0:35:14.6	12 25 20.62	-2-44-22.0	1.001461	-1.490	1916.5	6.8	225.7	25.9	
OCT 2	12184.5	0:43: 7.7	12 32 34.72	-3-30-54.1	1.000885	-1.494	1917.6	6.7	199.4	26.0	
OCT 4	12186.5	0:51: 0.8	12 39 50.02	-4-17-16.6	1.000314	-1.497	1918.7	6.6	173.0	26.1	
OCT 6	12188.5	0:58:53.9	12 47 6.74	-5 -3-26.8	0.999746	-1.498	1919.8	6.5	146.6	26.2	
OCT 8	12190.5	1: 6:47.0	12 54 25.05	-5-49-22.2	0.999182	-1.497	1920.9	6.3	120.2	26.3	
OCT 10	12192.5	1:14:40.1	13 1 45.13	-6-34-59.9	0.998622	-1.494	1922.0	6.2	93.8	26.3	
OCT 12	12194.5	1:22:33.3	13 9 7.14	-7-20-17.1	0.998063	-1.489	1923.0	6.1	67.4	26.3	
OCT 14	12196.5	1:30:26.4	13 16 31.20	-8 -5-10.8	0.997504	-1.483	1924.1	5.9	41.0	26.2	
OCT 16	12198.5	1:38:19.5	13 23 57.46	-8-49-37.7	0.996942	-1.474	1925.2	5.8	14.7	26.2	
OCT 18	12200.5	1:46:12.6	13 31 26.02	-9-33-34.7	0.996378	-1.464	1926.3	5.6	348.3	26.1	
OCT 20	12202.5	1:54: 5.7	13 38 57.01	-10-16-58.6	0.995812	-1.452	1927.4	5.5	321.9	25.9	
OCT 22	12204.5	2: 1:58.8	13 46 30.52	-10-59-46.0	0.995246	-1.438	1928.5	5.3	295.5	25.8	
OCT 24	12206.5	2: 9:51.9	13 54 6.65	-11-41-53.6	0.994684	-1.422	1929.6	5.1	269.1	25.6	
OCT 26	12208.5	2:17:45.0	14 1 45.51	-12-23-18.2	0.994128	-1.406	1930.6	5.0	242.8	25.4	
OCT 28	12210.5	2:25:38.1	14 9 27.21	-13 -3-56.6	0.993580	-1.387	1931.7	4.8	216.4	25.1	
OCT 30	12212.5	2:33:31.3	14 17 11.87	-13-43-45.6	0.993043	-1.367	1932.8	4.6	190.0	24.8	
NOV 1	12214.5	2:41:24.4	14 24 59.61	-14-22-42.2	0.992518	-1.346	1933.8	4.4	163.6	24.5	
NOV 3	12216.5	2:49:17.5	14 32 50.55	-15 0-43.4	0.992007	-1.322	1934.8	4.2	137.3	24.2	
NOV 5	12218.5	2:57:10.6	14 40 44.77	-15-37-46.0	0.991511	-1.297	1935.7	4.0	110.9	23.8	
NOV 7	12220.5	3: 5: 3.7	14 48 42.36	-16-13-47.1	0.991028	-1.271	1936.7	3.7	84.5	23.4	
NOV 9	12222.5	3:12:56.8	14 56 43.38	-16-48-43.4	0.990558	-1.242	1937.6	3.5	58.2	22.9	
NOV 11	12224.5	3:20:49.9	15 4 47.84	-17-22-31.8	0.990099	-1.212	1938.5	3.3	31.8	22.4	
NOV 13	12226.5	3:28:43.0	15 12 55.76	-17-55 -8.9	0.989648	-1.181	1939.4	3.1	5.4	21.9	
NOV 15	12228.5	3:36:36.1	15 21 7.13	-18-26-31.4	0.989204	-1.147	1940.3	2.8	339.1	21.4	
NOV 17	12230.5	3:44:29.3	15 29 21.90	-18-56-36.2	0.988767	-1.113	1941.1	2.6	312.7	20.8	
NOV 19	12232.5	3:52:22.4	15 37 39.99	-19-25-19.9	0.988338	-1.077	1942.0	2.4	286.3	20.2	
NOV 21	12234.5	4: 0:15.5	15 46 1.31	-19-52-39.5	0.987920	-1.039	1942.8	2.1	260.0	19.6	
NOV 23	12236.5	4: 8: 8.6	15 54 25.77	-20-18-31.9	0.987514	-1.001	1943.6	1.9	233.6	19.0	
NOV 25	12238.5	4:16: 1.7	16 2 53.29	-20-42-54.1	0.987124	-0.962	1944.3	1.6	207.2	18.3	
NOV 27	12240.5	4:23:54.8	16 11 23.76	-21 -5-43.6	0.986751	-0.921	1945.1	1.4	180.9	17.6	
NOV 29	12242.5	4:31:47.9	16 19 57.08	-21-26-57.8	0.986397	-0.880	1945.8	1.1	154.5	16.8	
DEC 1	12244.5	4:39:41.0	16 28 33.14	-21-46-34.3	0.986064	-0.837	1946.4	0.9	128.2	16.1	
DEC 3	12246.5	4:47:34.1	16 37 11.81	-22 -4-31.0	0.985754	-0.793	1947.0	0.6	101.8	15.3	
DEC 5	12248.5	4:55:27.2	16 45 52.93	-22-20-45.8	0.985467	-0.749	1947.6	0.4	75.4	14.5	
DEC 7	12250.5	5: 3:20.4	16 54 36.34	-22-35-16.8	0.985200	-0.703	1948.1	0.1	49.1	13.7	
DEC 9	12252.5	5:11:13.5	17 3 21.85	-22-48 -2.0	0.984953	-0.656	1948.6	-0.1	22.7	12.8	
DEC 11	12254.5	5:19: 6.6	17 12 9.23	-22-58-59.8	0.984722	-0.608	1949.1	-0.4	356.4	12.0	
DEC 13	12256.5	5:26:59.7	17 20 58.25	-23 -8 -8.6	0.984507	-0.559	1949.5	-0.7	330.0	11.1	
DEC 15	12258.5	5:34:52.8	17 29 48.64	-23-15-27.1	0.984305	-0.510	1949.9	-0.9	303.7	10.2	
DEC 17	12260.5	5:42:45.9	17 38 40.08	-23-20-54.4	0.984116	-0.459	1950.3	-1.2	277.3	9.3	
DEC 19	12262.5	5:50:39.0	17 47 32.27	-23-24-29.4	0.983943	-0.409	1950.6	-1.4	251.0	8.3	
DEC 21	12264.5	5:58:32.1	17 56 24.92	-23-26-11.7	0.983786	-0.358	1950.9	-1.7	224.6	7.4	
DEC 23	12266.5	6: 6:25.2	18 5 17.74	-23-26 -0.9	0.983646	-0.306	1951.2	-1.9	198.3	6.5	
DEC 25	12268.5	6:14:18.4	18 14 10.46	-23-23-56.9	0.983528	-0.255	1951.5	-2.2	171.9	5.5	
DEC 27	12270.5	6:22:11.5	18 23 2.81	-23-20 -0.1	0.983431	-0.203	1951.6	-2.4	145.6	4.5	

2002 SUN

Geocentric Planetary Ephemeris

2002 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 2	12276.5	6:45:50.8	18 49 35.24	-22-56-58.3	0.983291	-0.046	1951.9	-3.1	66.6	1.6	
JAN 4	12278.5	6:53:43.9	18 58 23.74	-22-45-37.2	0.983296	0.006	1951.9	-3.4	40.2	0.7	
JAN 6	12280.5	7: 1:37.0	19 7 10.72	-22-32-27.6	0.983324	0.058	1951.9	-3.6	13.9	-0.3	
JAN 8	12282.5	7: 9:30.1	19 15 55.98	-22-17-31.1	0.983373	0.111	1951.8	-3.8	347.6	-1.3	
JAN 10	12284.5	7:17:23.2	19 24 39.31	-22 0-49.3	0.983440	0.164	1951.6	-4.0	321.2	-2.2	
JAN 12	12286.5	7:25:16.4	19 33 20.48	-21-42-24.3	0.983524	0.216	1951.5	-4.2	294.9	-3.2	
JAN 14	12288.5	7:33: 9.5	19 41 59.26	-21-22-18.1	0.983622	0.268	1951.3	-4.4	268.5	-4.1	
JAN 16	12290.5	7:41: 2.6	19 50 35.45	-21 0-33.0	0.983736	0.320	1951.0	-4.6	242.2	-5.1	
JAN 18	12292.5	7:48:55.7	19 59 8.86	-20-37-11.6	0.983865	0.372	1950.8	-4.8	215.9	-6.0	
JAN 20	12294.5	7:56:48.8	20 7 39.36	-20-12-16.4	0.984010	0.423	1950.5	-5.0	189.5	-6.9	
JAN 22	12296.5	8: 4:41.9	20 16 6.81	-19-45-50.2	0.984174	0.473	1950.2	-5.2	163.2	-7.8	
JAN 24	12298.5	8:12:35.0	20 24 31.13	-19-17-55.8	0.984357	0.522	1949.8	-5.4	136.9	-8.7	
JAN 26	12300.5	8:20:28.1	20 32 52.26	-18-48-36.4	0.984562	0.571	1949.4	-5.6	110.5	-9.6	
JAN 28	12302.5	8:28:21.2	20 41 10.14	-18-17-54.9	0.984789	0.618	1949.0	-5.7	84.2	-10.4	
JAN 30	12304.5	8:36:14.4	20 49 24.75	-17-45-54.5	0.985042	0.665	1948.5	-5.9	57.9	-11.3	
FEB 1	12306.5	8:44: 7.5	20 57 36.12	-17-12-38.2	0.985318	0.711	1947.9	-6.0	31.5	-12.1	
FEB 3	12308.5	8:52: 0.6	21 5 44.27	-16-38 -9.0	0.985617	0.757	1947.3	-6.2	5.2	-12.9	
FEB 5	12310.5	8:59:53.7	21 13 49.25	-16 -2-29.8	0.985935	0.801	1946.7	-6.3	338.9	-13.7	
FEB 7	12312.5	9: 7:46.8	21 21 51.09	-15-25-44.0	0.986270	0.845	1946.0	-6.4	312.5	-14.5	
FEB 9	12314.5	9:15:39.9	21 29 49.80	-14-47-54.9	0.986618	0.888	1945.3	-6.5	286.2	-15.2	
FEB 11	12316.5	9:23:33.0	21 37 45.41	-14 -9 -5.9	0.986979	0.929	1944.6	-6.6	259.9	-16.0	
FEB 13	12318.5	9:31:26.1	21 45 37.95	-13-29-20.5	0.987350	0.970	1943.9	-6.7	233.5	-16.7	
FEB 15	12320.5	9:39:19.2	21 53 27.46	-12-48-41.9	0.987732	1.009	1943.1	-6.8	207.2	-17.3	
FEB 17	12322.5	9:47:12.3	22 1 14.01	-12 -7-13.8	0.988125	1.047	1942.4	-6.9	180.9	-18.0	
FEB 19	12324.5	9:55: 5.5	22 8 57.70	-11-24-59.3	0.988528	1.084	1941.6	-7.0	154.5	-18.6	
FEB 21	12326.5	10: 2:58.6	22 16 38.62	-10-42 -2.1	0.988944	1.119	1940.8	-7.0	128.2	-19.3	
FEB 23	12328.5	10:10:51.7	22 24 16.89	-9-58-25.5	0.989374	1.152	1939.9	-7.1	101.9	-19.9	
FEB 25	12330.5	10:18:44.8	22 31 52.63	-9-14-12.8	0.989819	1.184	1939.1	-7.1	75.5	-20.4	
FEB 27	12332.5	10:26:37.9	22 39 25.98	-8-29-27.3	0.990281	1.214	1938.1	-7.2	49.2	-21.0	
MAR 1	12334.5	10:34:31.0	22 46 57.11	-7-44-12.0	0.990761	1.243	1937.2	-7.2	22.8	-21.5	
MAR 3	12336.5	10:42:24.1	22 54 26.22	-6-58-29.8	0.991257	1.270	1936.2	-7.2	356.5	-22.0	
MAR 5	12338.5	10:50:17.2	23 1 53.49	-6-12-23.6	0.991768	1.296	1935.2	-7.2	330.1	-22.4	
MAR 7	12340.5	10:58:10.3	23 9 19.09	-5-25-56.4	0.992289	1.321	1934.2	-7.2	303.8	-22.9	
MAR 9	12342.5	11: 6: 3.5	23 16 43.15	-4-39-11.2	0.992819	1.343	1933.2	-7.2	277.4	-23.3	
MAR 11	12344.5	11:13:56.6	23 24 5.80	-3-52-11.4	0.993354	1.365	1932.2	-7.2	251.1	-23.7	
MAR 13	12346.5	11:21:49.7	23 31 27.19	-3 -4-60.0	0.993892	1.385	1931.1	-7.2	224.7	-24.1	
MAR 15	12348.5	11:29:42.8	23 38 47.46	-2-17-40.1	0.994433	1.403	1930.1	-7.2	198.4	-24.4	
MAR 17	12350.5	11:37:35.9	23 46 6.74	-1-30-14.8	0.994975	1.419	1929.0	-7.1	172.0	-24.7	
MAR 19	12352.5	11:45:29.0	23 53 25.19	0-42-47.3	0.995519	1.434	1928.0	-7.1	145.6	-25.0	
MAR 21	12354.5	11:53:22.1	0 0 42.96	0 4 39.5	0.996065	1.447	1926.9	-7.0	119.3	-25.3	
MAR 23	12356.5	12: 1:15.2	0 8 0.19	0 52 2.3	0.996614	1.458	1925.8	-7.0	92.9	-25.5	
MAR 25	12358.5	12: 9: 8.3	0 15 17.03	1 39 18.3	0.997168	1.467	1924.8	-6.9	66.5	-25.7	
MAR 27	12360.5	12:17: 1.5	0 22 33.66	2 26 24.5	0.997728	1.474	1923.7	-6.8	40.2	-25.9	
MAR 29	12362.5	12:24:54.6	0 29 50.25	3 13 18.2	0.998296	1.479	1922.6	-6.7	13.8	-26.0	
MAR 31	12364.5	12:32:47.7	0 37 7.02	3 59 57.0	0.998873	1.482	1921.5	-6.6	347.4	-26.1	
APR 2	12366.5	12:40:40.8	0 44 24.17	4 46 18.3	0.999455	1.484	1920.4	-6.5	321.0	-26.2	
APR 4	12368.5	12:48:33.9	0 51 41.87	5 32 19.6	1.000041	1.484	1919.2	-6.4	294.6	-26.3	
APR 6	12370.5	12:56:27.0	0 59 0.27	6 17 58.1	1.000628	1.483	1918.1	-6.3	268.2	-26.3	
APR 8	12372.5	13: 4:20.1	1 6 19.50	7 3 10.9	1.001211	1.480	1917.0	-6.1	241.8	-26.3	
APR 10	12374.5	13:12:13.2	1 13 39.70	7 47 55.4	1.001790	1.475	1915.9	-6.0	215.4	-26.3	
APR 12	12376.5	13:20: 6.3	1 21 0.97	8 32 8.6	1.002363	1.469	1914.8	-5.9	189.0	-26.2	
APR 14	12378.5	13:27:59.4	1 28 23.46	9 15 47.7	1.002927	1.461	1913.7	-5.7	162.6	-26.1	
APR 16	12380.5	13:35:52.6	1 35 47.26	9 58 49.8	1.003483	1.451	1912.6	-5.5	136.2	-26.0	
APR 18	12382.5	13:43:45.7	1 43 12.48	10 41 12.2	1.004030	1.439	1911.6	-5.4	109.8	-25.9	
APR 20	12384.5	13:51:38.8	1 50 39.21	11 22 52.0	1.004569	1.426	1910.6	-5.2	83.4	-25.7	
APR 22	12386.5	13:59:31.9	1 58 7.54	12 3 46.3	1.005102	1.411	1909.6	-5.0	57.0	-25.5	
APR 24	12388.5	14: 7:25.0	2 5 37.55	12 43 52.5	1.005631	1.394	1908.6	-4.9	30.6	-25.2	
APR 26	12390.5	14:15:18.1	2 13 9.37	13 23 7.9	1.006157	1.375	1907.6	-4.7	4.1	-25.0	
APR 28	12392.5	14:23:11.2	2 20 43.14	14 1 30.2	1.006681	1.354	1906.6	-4.5	337.7	-24.7	
APR 30	12394.5	14:31: 4.3	2 28 18.98	14 38 57.3	1.007204	1.333	1905.6	-4.3	311.3	-24.4	
MAY 2	12396.5	14:38:57.4	2 35 56.97	15 15 26.7	1.007722	1.309	1904.6	-4.1	284.9	-24.0	
MAY 4	12398.5	14:46:50.6	2 43 37.19	15 50 55.9	1.008234	1.285	1903.6	-3.9	258.4	-23.6	
MAY 6	12400.5	14:54:43.7	2 51 19.67	16 25 22.5	1.008736	1.259	1902.7	-3.7	232.0	-23.2	
MAY 8	12402.5	15: 2:36.8	2 59 4.46	16 58 43.9	1.009226	1.231	1901.8	-3.5	205.5	-22.8	
MAY 10	12404.5	15:10:29.9	3 6 51.58	17 30 57.5	1.009702	1.203	1900.9	-3.2	179.1	-22.3	
MAY 12	12406.5	15:18:23.0	3 14 41.02	18 2 1.0	1.010162	1.173	1900.0	-3.0	152.7	-21.8	
MAY 14	12408.5	15:26:16.1	3 22 32.78	18 31 51.8	1.010605	1.141	1899.2	-2.8	126.2	-21.3	
MAY 16	12410.5	15:34: 9.2	3 30 26.81	19 0 27.6	1.011030	1.109	1898.4	-2.6	99.8	-20.8	
MAY 18	12412.5	15:42: 2.3	3 38 23.04	19 27 46.0	1.011438	1.075	1897.6	-2.3	73.3	-20.2	
MAY 20	12414.5	15:49:55.4	3 46 21.42	19 53 44.8	1.011831	1.040	1896.9	-2.1	46.8	-19.6	
MAY 22	12416.5	15:57:48.6	3 54 21.87	20 18 21.6	1.012210	1.003	1896.2	-1.9	20.4	-19.0	
MAY 24	12418.5	16: 5:41.7	4 2 24.36	20 41 34.6	1.012578	0.965	1895.5	-1.6	353.9	-18.3	
MAY 26	12420.5	16:13:34.8	4 10 28.86	21 3 22.1	1.012936	0.926	1894.8	-1.4	327.5	-17.7	
MAY 28	12422.5	16:21:27.9	4 18 35.31	21 23 42.4	1.013285	0.886	1894.1	-1.2	301.0	-17.0	
MAY 30	12424.5	16:29:21.0	4 26 43.63	21 42 34.2	1.013624	0.845	1893.5	-0.9	274.5	-16.3	
JUN 1	12426.5	16:37:14.1	4 34 53.75	21 59 55.7	1.013951	0.803	1892.9	-0.7	248.1	-15.5	
JUN 3	12428.5	16:45: 7.2	4 43 5.53	22 15 45.6	1.014264	0.760	1892.3	-0.4	221.6	-14.8	
JUN 5	12430.5	16:53: 0.3	4 51 18.86	22 30 2.3	1.014561	0.717	1891.8	-0.2	195.1	-14.0	
JUN 7	12432.5	17: 0:53.4	4 59 33.60	22 42 44.6	1.014839	0.672	1891.2	0.0	168.7	-13.2	
JUN 9	12434.5	17: 8:46.5	5 7 49.59	22 53 51.4	1.015096	0.628	1890.8	0.3	142.2	-12.4	
JUN 11	12436.5	17:16:39.7	5 16 6.64	23 3 21.6	1.015331	0.582	1890.3	0.5	115.7	-11.6	
JUN 13	12438.5	17:24:32.8	5 24 24.55	23 11 14.3	1.015543	0.536	1889.9	0.8	89.3	-10.7	
JUN 15	12440.5	17:32:25.9	5 32 43.09	23 17 28.9	1.015732	0.490	1889.6	1.0	62.8	-9.9	
JUN 17	12442.5	17:40:19.0	5 41 2.05	23 22 4.6	1.015899	0.442	1889.3	1.2	36.3	-9.0	
JUN 19	12444.5	17:48:12.1	5 49 21.21	23 25 1.2	1.016047	0.394	1889.0	1.5	9.8	-8.2	
JUN 21	12446.5	17:56: 5.2	5 57 40.40	23 26 18.3	1.016177	0.346	1888.8	1.7	343.4	-7.3	
JUN 23	12448.5	18: 3:58.3	6 5 59.47	23 25 56.1	1.016293	0.297	1888.5	1.9	316.9	-6.4	
JUN 25	12450.5	18:11:51.4	6 14 18.25	23 23 54.9	1.016395	0.247	1888.3	2.2	290.4	-5.5	
JUN 27	12452.5	18:19:44.5	6 22 36.58	23 20 15.1	1.016485	0.197	1888.2	2.4	263.9	-4.6	
JUN 29	12454.5	18:27:37.7	6 30 54.29	23 14 56.9	1.016560	0.147	1888.0	2.6	237.5	-3.7</	

2002 SUN

Geocentric Planetary Ephemeris

2002 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	Dec (d ° ')	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 1	12456.5	18:35:30.8	6 39 11.24	23 8 1.1	1.016619	0.097	1887.9	2.9	211.0	-2.8
JUL 3	12458.5	18:43:23.9	6 47 27.26	22 59 28.1	1.016662	0.047	1887.9	3.1	184.5	-1.9
JUL 5	12460.5	18:51:17.0	6 55 42.19	22 49 18.8	1.016685	-0.003	1887.8	3.3	158.0	-1.0
JUL 7	12462.5	18:59:10.1	7 3 55.88	22 37 34.1	1.016686	-0.052	1887.8	3.5	131.6	-0.1
JUL 9	12464.5	19: 7: 3.2	7 12 8.15	22 24 15.3	1.016665	-0.102	1887.8	3.7	105.1	0.8
JUL 11	12466.5	19:14:56.3	7 20 18.83	22 9 23.5	1.016619	-0.151	1887.9	3.9	78.6	1.7
JUL 13	12468.5	19:22:49.4	7 28 27.73	21 53 0.3	1.016549	-0.201	1888.1	4.1	52.2	2.6
JUL 15	12470.5	19:30:42.5	7 36 34.68	21 35 7.1	1.016454	-0.250	1888.2	4.3	25.7	3.5
JUL 17	12472.5	19:38:35.7	7 44 39.55	21 15 45.6	1.016338	-0.299	1888.5	4.5	359.2	4.4
JUL 19	12474.5	19:46:28.8	7 52 42.25	20 54 57.6	1.016203	-0.348	1888.7	4.7	332.8	5.3
JUL 21	12476.5	19:54:21.9	8 0 42.71	20 32 44.9	1.016052	-0.397	1889.0	4.9	306.3	6.2
JUL 23	12478.5	20: 2:15.0	8 8 40.87	20 9 9.7	1.015886	-0.445	1889.3	5.0	279.9	7.0
JUL 25	12480.5	20:10: 8.1	8 16 36.69	19 44 14.0	1.015708	-0.493	1889.6	5.2	253.4	7.9
JUL 27	12482.5	20:18: 1.2	8 24 30.15	19 17 59.7	1.015516	-0.541	1890.0	5.4	226.9	8.7
JUL 29	12484.5	20:25:54.3	8 32 21.24	18 50 28.8	1.015312	-0.587	1890.4	5.5	200.5	9.5
JUL 31	12486.5	20:33:47.4	8 40 9.97	18 21 43.5	1.015092	-0.633	1890.8	5.7	174.0	10.3
AUG 2	12488.5	20:41:40.5	8 47 56.34	17 51 45.8	1.014857	-0.679	1891.2	5.8	147.6	11.1
AUG 4	12490.5	20:49:33.6	8 55 40.36	17 20 38.0	1.014604	-0.723	1891.7	6.0	121.1	11.9
AUG 6	12492.5	20:57:26.8	9 3 22.05	16 48 22.4	1.014331	-0.766	1892.2	6.1	94.7	12.7
AUG 8	12494.5	21: 5:19.9	9 11 1.39	16 15 1.4	1.014038	-0.808	1892.7	6.2	68.2	13.4
AUG 10	12496.5	21:13:13.0	9 18 38.38	15 40 37.6	1.013722	-0.850	1893.3	6.4	41.8	14.2
AUG 12	12498.5	21:21: 6.1	9 26 13.02	15 5 13.6	1.013385	-0.891	1894.0	6.5	15.4	14.9
AUG 14	12500.5	21:28:59.2	9 33 45.35	14 28 51.9	1.013027	-0.930	1894.6	6.6	348.9	15.6
AUG 16	12502.5	21:36:52.3	9 41 15.43	13 51 35.0	1.012653	-0.969	1895.3	6.7	322.5	16.3
AUG 18	12504.5	21:44:45.4	9 48 43.34	13 13 25.7	1.012264	-1.007	1896.1	6.8	296.0	16.9
AUG 20	12506.5	21:52:38.5	9 56 9.17	12 34 26.5	1.011865	-1.044	1896.8	6.9	269.6	17.6
AUG 22	12508.5	22: 0:31.6	10 3 33.03	11 54 39.9	1.011456	-1.080	1897.6	6.9	243.2	18.2
AUG 24	12510.5	22: 8:24.8	10 10 55.05	11 14 8.4	1.011038	-1.115	1898.4	7.0	216.7	18.8
AUG 26	12512.5	22:16:17.9	10 18 15.36	10 32 54.3	1.010612	-1.148	1899.2	7.1	190.3	19.4
AUG 28	12514.5	22:24:11.0	10 25 34.11	9 50 60.0	1.010178	-1.180	1900.0	7.1	163.9	20.0
AUG 30	12516.5	22:32: 4.1	10 32 51.44	9 8 27.8	1.009735	-1.211	1900.8	7.2	137.5	20.5
SEP 1	12518.5	22:39:57.2	10 40 7.50	8 25 20.3	1.009281	-1.240	1901.7	7.2	111.1	21.0
SEP 3	12520.5	22:47:50.3	10 47 22.41	7 41 39.9	1.008816	-1.267	1902.5	7.2	84.6	21.5
SEP 5	12522.5	22:55:43.4	10 54 36.30	6 57 29.3	1.008337	-1.293	1903.4	7.2	58.2	22.0
SEP 7	12524.5	23: 3:36.5	11 1 49.27	6 12 51.2	1.007842	-1.318	1904.4	7.2	31.8	22.4
SEP 9	12526.5	23:11:29.6	11 9 1.42	5 27 48.4	1.007332	-1.341	1905.3	7.2	5.4	22.9
SEP 11	12528.5	23:19:22.8	11 16 12.90	4 42 23.6	1.006807	-1.362	1906.3	7.2	339.0	23.3
SEP 13	12530.5	23:27:15.9	11 23 23.82	3 56 39.6	1.006271	-1.382	1907.3	7.2	312.6	23.7
SEP 15	12532.5	23:35: 9.0	11 30 34.34	3 10 39.3	1.005726	-1.401	1908.4	7.2	286.2	24.0
SEP 17	12534.5	23:43: 2.1	11 37 44.60	2 24 25.4	1.005176	-1.418	1909.4	7.2	259.8	24.4
SEP 19	12536.5	23:50:55.2	11 44 54.79	1 38 0.5	1.004622	-1.434	1910.5	7.1	233.4	24.7
SEP 21	12538.5	23:58:48.3	11 52 5.07	0 51 27.2	1.004068	-1.448	1911.5	7.1	207.0	24.9
SEP 23	12540.5	0: 6:41.4	11 59 15.64	0 4 47.9	1.003512	-1.460	1912.6	7.0	180.6	25.2
SEP 25	12542.5	0:14:34.5	12 6 26.70	0-41-54.9	1.002958	-1.471	1913.6	7.0	154.2	25.4
SEP 27	12544.5	0:22:27.6	12 13 38.43	-1-28-38.5	1.002403	-1.480	1914.7	6.9	127.8	25.6
SEP 29	12546.5	0:30:20.7	12 20 51.02	-2-15-20.5	1.001847	-1.487	1915.8	6.8	101.4	25.8
OCT 1	12548.5	0:38:13.9	12 28 4.63	-3 -1-58.1	1.001290	-1.492	1916.8	6.7	75.0	26.0
OCT 3	12550.5	0:46: 7.0	12 35 19.43	-3-48-28.5	1.000730	-1.496	1917.9	6.6	48.6	26.1
OCT 5	12552.5	0:54: 0.1	12 42 35.55	-4-34-48.8	1.000164	-1.497	1919.0	6.5	22.2	26.2
OCT 7	12554.5	1: 1:53.2	12 49 53.13	-5-20-55.9	0.999592	-1.497	1920.1	6.4	355.8	26.2
OCT 9	12556.5	1: 9:46.3	12 57 12.30	-6 -6-46.9	0.999014	-1.494	1921.2	6.3	329.4	26.3
OCT 11	12558.5	1:17:39.4	13 4 33.20	-6-52-18.4	0.998432	-1.491	1922.3	6.2	303.1	26.3
OCT 13	12560.5	1:25:32.5	13 11 55.95	-7-37-27.4	0.997848	-1.485	1923.4	6.0	276.7	26.3
OCT 15	12562.5	1:33:25.6	13 19 20.68	-8-22-10.7	0.997266	-1.478	1924.6	5.9	250.3	26.2
OCT 17	12564.5	1:41:18.7	13 26 47.54	-9 -6-25.2	0.996689	-1.469	1925.7	5.7	223.9	26.1
OCT 19	12566.5	1:49:11.9	13 34 16.69	-9-50 -8.1	0.996119	-1.459	1926.8	5.6	197.5	26.0
OCT 21	12568.5	1:57: 5.0	13 41 48.30	-10-33-16.4	0.995558	-1.447	1927.9	5.4	171.1	25.9
OCT 23	12570.5	2: 4:58.1	13 49 22.51	-11-15-47.2	0.995006	-1.433	1928.9	5.2	144.8	25.7
OCT 25	12572.5	2:12:51.2	13 56 59.49	-11-57-37.6	0.994465	-1.418	1930.0	5.1	118.4	25.5
OCT 27	12574.5	2:20:44.3	14 4 39.37	-12-38-44.5	0.993934	-1.400	1931.0	4.9	92.0	25.3
OCT 29	12576.5	2:28:37.4	14 12 22.27	-13-19 -4.9	0.993412	-1.381	1932.0	4.7	65.6	25.0
OCT 31	12578.5	2:36:30.5	14 20 8.28	-13-58-35.6	0.992898	-1.360	1933.0	4.5	39.3	24.7
NOV 2	12580.5	2:44:23.6	14 27 57.48	-14-37-13.2	0.992390	-1.337	1934.0	4.3	12.9	24.4
NOV 4	12582.5	2:52:16.7	14 35 49.95	-15-14-54.5	0.991886	-1.313	1935.0	4.1	346.5	24.0
NOV 6	12584.5	3: 0: 9.9	14 43 45.74	-15-51-36.1	0.991385	-1.287	1936.0	3.9	320.1	23.6
NOV 8	12586.5	3: 8: 3.0	14 51 44.84	-16-27-14.4	0.990888	-1.259	1937.0	3.7	293.8	23.2
NOV 10	12588.5	3:15:56.1	14 59 47.26	-17 -1-46.2	0.990398	-1.230	1937.9	3.4	267.4	22.7
NOV 12	12590.5	3:23:49.2	15 7 52.99	-17-35 -7.8	0.989917	-1.199	1938.9	3.2	241.0	22.3
NOV 14	12592.5	3:31:42.3	15 16 2.03	-18 -7-16.3	0.989448	-1.167	1939.8	3.0	214.7	21.7
NOV 16	12594.5	3:39:35.4	15 24 14.39	-18-38 -8.4	0.988994	-1.134	1940.7	2.8	188.3	21.2
NOV 18	12596.5	3:47:28.5	15 32 30.07	-19 -7-41.2	0.988556	-1.100	1941.5	2.5	161.9	20.6
NOV 20	12598.5	3:55:21.6	15 40 49.06	-19-35-51.8	0.988136	-1.064	1942.4	2.3	135.6	20.0
NOV 22	12600.5	4: 3:14.7	15 49 11.32	-20 -2-37.3	0.987735	-1.027	1943.1	2.0	109.2	19.4
NOV 24	12602.5	4:11: 7.9	15 57 36.80	-20-27-55.2	0.987354	-0.988	1943.9	1.8	82.9	18.7
NOV 26	12604.5	4:19: 1.0	16 6 5.43	-20-51-42.6	0.986992	-0.948	1944.6	1.5	56.5	18.0
NOV 28	12606.5	4:26:54.1	16 14 37.10	-21-13-56.9	0.986647	-0.907	1945.3	1.3	30.1	17.3
NOV 30	12608.5	4:34:47.2	16 23 11.70	-21-34-35.4	0.986318	-0.865	1945.9	1.0	3.8	16.6
DEC 2	12610.5	4:42:40.3	16 31 49.08	-21-53-35.7	0.986002	-0.821	1946.6	0.8	337.4	15.8
DEC 4	12612.5	4:50:33.4	16 40 29.06	-22-10-55.2	0.985698	-0.776	1947.2	0.5	311.1	15.0
DEC 6	12614.5	4:58:26.5	16 49 11.42	-22-26-31.9	0.985406	-0.730	1947.7	0.3	284.7	14.2
DEC 8	12616.5	5: 6:19.6	16 57 55.89	-22-40-23.7	0.985125	-0.684	1948.3	0.0	258.4	13.4
DEC 10	12618.5	5:14:12.7	17 6 42.22	-22-52-28.5	0.984859	-0.636	1948.8	-0.2	232.0	12.5
DEC 12	12620.5	5:22: 5.8	17 15 30.18	-23 -2-44.9	0.984610	-0.588	1949.3	-0.5	205.6	11.6
DEC 14	12622.5	5:29:59.0	17 24 19.52	-23-11-11.5	0.984380	-0.540	1949.8	-0.8	179.3	10.7
DEC 16	12624.5	5:37:52.1	17 33 10.02	-23-17-47.2	0.984171	-0.490	1950.2	-1.0	152.9	9.8
DEC 18	12626.5	5:45:45.2	17 42 1.44	-23-22-31.2	0.983985	-0.441	1950.5	-1.3	126.6	8.9
DEC 20	12628.5	5:53:38.3	17 50 53.53	-23-25-23.0	0.983823	-0.391	1950.9	-1.5	100.2	8.0
DEC 22	12630.5	6: 1:31.4	17 59 46.05	-23-26-22.2	0.983686	-0.340	1951.1	-1.8	73.9	7.1
DEC 24	12632.5	6: 9:24.5	18 8 38.74	-23-25-28.7	0.983574	-0.289	1951.4	-2.0	47.6	6.1
DEC 26	12634.5	6:17:17.6	18 17 31.37	-23-22-42.3	0.983485	-0.237	1951.5	-2.3	21.2	5.1
DEC 28	12636.5	6:25:10.7	18 26 23.67	-23-18 -3.3	0.983419	-0.185	1951.7	-2.5	354.9	4.2
DEC 30	12638.5	6:33: 3.8	18 35 15.41	-23-11-32.0	0.983371	-0.132	1951.8	-2.7	328.5	3.2

2003 SUN

Geocentric Planetary Ephemeris

2003 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 1	12640.5	6:40:57.0	18 44 6.30	-23 -3 -9.1	0.983339	-0.079	1951.8	-3.0	302.2	2.2	
JAN 3	12642.5	6:48:50.1	18 52 56.05	-22-52-55.7	0.983323	-0.026	1951.9	-3.2	275.8	1.3	
JAN 5	12644.5	6:56:43.2	19 1 44.35	-22-40-53.0	0.983322	0.027	1951.9	-3.4	249.5	0.3	
JAN 7	12646.5	7: 4:36.3	19 10 30.93	-22-27 -2.3	0.983336	0.080	1951.8	-3.7	223.2	-0.7	
JAN 9	12648.5	7:12:29.4	19 19 15.54	-22-11-25.2	0.983367	0.133	1951.8	-3.9	196.8	-1.6	
JAN 11	12650.5	7:20:22.5	19 27 57.97	-21-54 -3.7	0.983417	0.185	1951.7	-4.1	170.5	-2.6	
JAN 13	12652.5	7:28:15.6	19 36 38.04	-21-34-59.8	0.983488	0.237	1951.5	-4.3	144.2	-3.5	
JAN 15	12654.5	7:36: 8.7	19 45 15.57	-21-14-15.8	0.983581	0.289	1951.3	-4.5	117.8	-4.5	
JAN 17	12656.5	7:44: 1.8	19 53 50.43	-20-51-54.1	0.983699	0.340	1951.1	-4.7	91.5	-5.4	
JAN 19	12658.5	7:51:55.0	20 2 22.49	-20-27-57.3	0.983841	0.391	1950.8	-4.9	65.1	-6.3	
JAN 21	12660.5	7:59:48.1	20 10 51.65	-20 -2-28.0	0.984009	0.441	1950.5	-5.1	38.8	-7.2	
JAN 23	12662.5	8: 7:41.2	20 19 17.84	-19-35-28.6	0.984201	0.490	1950.1	-5.3	12.5	-8.1	
JAN 25	12664.5	8:15:34.3	20 27 41.02	-19 -7 -2.0	0.984416	0.540	1949.7	-5.4	346.1	-9.0	
JAN 27	12666.5	8:23:27.4	20 36 1.12	-18-37-10.8	0.984650	0.588	1949.2	-5.6	319.8	-9.9	
JAN 29	12668.5	8:31:20.5	20 44 18.11	-18 -5-58.2	0.984900	0.636	1948.7	-5.8	293.5	-10.8	
JAN 31	12670.5	8:39:13.6	20 52 31.91	-17-33-27.2	0.985165	0.684	1948.2	-5.9	267.1	-11.6	
FEB 2	12672.5	8:47: 6.7	21 0 42.45	-16-59-41.3	0.985443	0.731	1947.7	-6.1	240.8	-12.4	
FEB 4	12674.5	8:54:59.8	21 8 49.69	-16-24-43.7	0.985733	0.776	1947.1	-6.2	214.5	-13.2	
FEB 6	12676.5	9: 2:52.9	21 16 53.64	-15-48-37.7	0.986036	0.821	1946.5	-6.3	188.2	-14.0	
FEB 8	12678.5	9:10:46.1	21 24 54.30	-15-11-26.7	0.986353	0.864	1945.9	-6.5	161.8	-14.8	
FEB 10	12680.5	9:18:39.2	21 32 51.73	-14-33-14.2	0.986685	0.906	1945.2	-6.6	135.5	-15.5	
FEB 12	12682.5	9:26:32.3	21 40 45.97	-13-54 -3.5	0.987033	0.947	1944.5	-6.7	109.1	-16.2	
FEB 14	12684.5	9:34:25.4	21 48 37.11	-13-13-58.1	0.987400	0.987	1943.8	-6.8	82.8	-16.9	
FEB 16	12686.5	9:42:18.5	21 56 25.23	-12-33 -1.4	0.987786	1.025	1943.0	-6.9	56.5	-17.6	
FEB 18	12688.5	9:50:11.6	22 4 10.45	-11-51-16.6	0.988193	1.062	1942.2	-6.9	30.1	-18.3	
FEB 20	12690.5	9:58: 4.7	22 11 52.90	-11 -8-46.8	0.988619	1.097	1941.4	-7.0	3.8	-18.9	
FEB 22	12692.5	10: 5:57.8	22 19 32.75	-10-25-34.9	0.989064	1.132	1940.5	-7.1	337.5	-19.5	
FEB 24	12694.5	10:13:50.9	22 27 10.15	-9-41-44.1	0.989524	1.165	1939.6	-7.1	311.1	-20.1	
FEB 26	12696.5	10:21:44.1	22 34 45.21	-8-57-17.5	0.989996	1.197	1938.7	-7.2	284.8	-20.6	
FEB 28	12698.5	10:29:37.2	22 42 18.05	-8-12-18.4	0.990478	1.227	1937.8	-7.2	258.4	-21.2	
MAR 2	12700.5	10:37:30.3	22 49 48.77	-7-26-50.2	0.990966	1.256	1936.8	-7.2	232.1	-21.7	
MAR 4	12702.5	10:45:23.4	22 57 17.48	-6-40-56.3	0.991460	1.284	1935.8	-7.2	205.7	-22.2	
MAR 6	12704.5	10:53:16.5	23 4 44.32	-5-54-39.8	0.991959	1.310	1934.9	-7.2	179.4	-22.6	
MAR 8	12706.5	11: 1: 9.6	23 12 9.41	-5 -8 -4.1	0.992463	1.334	1933.9	-7.2	153.1	-23.1	
MAR 10	12708.5	11: 9: 2.7	23 19 32.92	-4-21-12.3	0.992974	1.356	1932.9	-7.2	126.7	-23.5	
MAR 12	12710.5	11:16:55.8	23 26 54.98	-3-34 -7.7	0.993491	1.377	1931.9	-7.2	100.3	-23.8	
MAR 14	12712.5	11:24:48.9	23 34 15.75	-2-46-53.4	0.994016	1.396	1930.9	-7.2	74.0	-24.2	
MAR 16	12714.5	11:32:42.1	23 41 35.39	-1-59-32.4	0.994552	1.413	1929.8	-7.2	47.6	-24.5	
MAR 18	12716.5	11:40:35.2	23 48 54.07	-1-12 -7.8	0.995098	1.428	1928.8	-7.1	21.3	-24.8	
MAR 20	12718.5	11:48:28.3	23 56 12.00	0-24-42.1	0.995656	1.441	1927.7	-7.1	354.9	-25.1	
MAR 22	12720.5	11:56:21.4	0 3 29.39	0 22 42.1	0.996224	1.453	1926.6	-7.0	328.5	-25.3	
MAR 24	12722.5	12: 4:14.5	0 10 46.44	1 10 2.1	0.996801	1.463	1925.5	-6.9	302.2	-25.6	
MAR 26	12724.5	12:12: 7.6	0 18 3.32	1 57 15.2	0.997383	1.472	1924.4	-6.8	275.8	-25.7	
MAR 28	12726.5	12:20: 0.7	0 25 20.17	2 44 18.5	0.997966	1.478	1923.2	-6.8	249.4	-25.9	
MAR 30	12728.5	12:27:53.8	0 32 37.13	3 31 9.1	0.998549	1.484	1922.1	-6.7	223.0	-26.0	
APR 1	12730.5	12:35:46.9	0 39 54.34	4 17 43.9	0.999128	1.487	1921.0	-6.6	196.6	-26.1	
APR 3	12732.5	12:43:40.0	0 47 11.94	5 3 60.0	0.999703	1.489	1919.9	-6.5	170.3	-26.2	
APR 5	12734.5	12:51:33.2	0 54 30.07	5 49 54.5	1.000274	1.489	1918.8	-6.3	143.9	-26.3	
APR 7	12736.5	12:59:26.3	1 1 48.86	6 35 24.6	1.000840	1.487	1917.7	-6.2	117.5	-26.3	
APR 9	12738.5	13: 7:19.4	1 9 8.43	7 20 27.2	1.001401	1.484	1916.6	-6.1	91.1	-26.3	
APR 11	12740.5	13:15:12.5	1 16 28.91	8 4 59.6	1.001960	1.478	1915.6	-5.9	64.7	-26.2	
APR 13	12742.5	13:23: 5.6	1 23 50.43	8 48 58.8	1.002517	1.471	1914.5	-5.8	38.3	-26.2	
APR 15	12744.5	13:30:58.7	1 31 13.12	9 32 22.3	1.003074	1.461	1913.4	-5.6	11.9	-26.1	
APR 17	12746.5	13:38:51.8	1 38 37.14	10 15 7.4	1.003633	1.450	1912.4	-5.5	345.5	-25.9	
APR 19	12748.5	13:46:44.9	1 46 2.67	10 57 11.9	1.004194	1.437	1911.3	-5.3	319.1	-25.8	
APR 21	12750.5	13:54:38.0	1 53 29.85	11 38 33.4	1.004755	1.423	1910.2	-5.1	292.6	-25.6	
APR 23	12752.5	14: 2:31.2	2 0 58.83	12 19 9.4	1.005313	1.407	1909.2	-5.0	266.2	-25.4	
APR 25	12754.5	14:10:24.3	2 8 29.67	12 58 57.3	1.005866	1.389	1908.1	-4.8	239.8	-25.1	
APR 27	12756.5	14:18:17.4	2 16 2.47	13 37 54.3	1.006409	1.371	1907.1	-4.6	213.4	-24.9	
APR 29	12758.5	14:26:10.5	2 23 37.30	14 15 57.7	1.006942	1.350	1906.1	-4.4	187.0	-24.6	
MAY 1	12760.5	14:34: 3.6	2 31 14.23	14 53 4.9	1.007461	1.328	1905.1	-4.2	160.5	-24.2	
MAY 3	12762.5	14:41:56.7	2 38 53.30	15 29 13.1	1.007967	1.305	1904.1	-4.0	134.1	-23.9	
MAY 5	12764.5	14:49:49.8	2 46 34.55	16 4 19.7	1.008459	1.280	1903.2	-3.8	107.7	-23.5	
MAY 7	12766.5	14:57:42.9	2 54 17.99	16 38 22.2	1.008936	1.254	1902.3	-3.6	81.2	-23.1	
MAY 9	12768.5	15: 5:36.0	3 2 3.62	17 11 17.8	1.009400	1.226	1901.4	-3.4	54.8	-22.6	
MAY 11	12770.5	15:13:29.2	3 9 51.45	17 43 4.0	1.009853	1.196	1900.6	-3.2	28.3	-22.1	
MAY 13	12772.5	15:21:22.3	3 17 41.48	18 13 38.5	1.010296	1.165	1899.8	-2.9	1.9	-21.6	
MAY 15	12774.5	15:29:15.4	3 25 33.74	18 42 59.1	1.010731	1.133	1898.9	-2.7	335.4	-21.1	
MAY 17	12776.5	15:37: 8.5	3 33 28.27	19 11 3.8	1.011159	1.099	1898.1	-2.5	309.0	-20.5	
MAY 19	12778.5	15:45: 1.6	3 41 25.07	19 37 50.6	1.011581	1.064	1897.3	-2.3	282.5	-20.0	
MAY 21	12780.5	15:52:54.7	3 49 24.13	20 3 17.8	1.011993	1.028	1896.6	-2.0	256.1	-19.4	
MAY 23	12782.5	16: 0:47.8	3 57 25.39	20 27 23.0	1.012394	0.991	1895.8	-1.8	229.6	-18.7	
MAY 25	12784.5	16: 8:40.9	4 5 28.80	20 50 4.4	1.012780	0.953	1895.1	-1.6	203.1	-18.1	
MAY 27	12786.5	16:16:34.0	4 13 34.28	21 11 20.0	1.013150	0.914	1894.4	-1.3	176.7	-17.4	
MAY 29	12788.5	16:24:27.1	4 21 41.73	21 31 7.9	1.013501	0.874	1893.7	-1.1	150.2	-16.7	
MAY 31	12790.5	16:32:20.3	4 29 51.03	21 49 26.3	1.013831	0.833	1893.1	-0.8	123.8	-16.0	
JUN 2	12792.5	16:40:13.4	4 38 2.04	22 6 13.7	1.014141	0.791	1892.6	-0.6	97.3	-15.2	
JUN 4	12794.5	16:48: 6.5	4 46 14.59	22 21 28.5	1.014430	0.748	1892.0	-0.4	70.8	-14.5	
JUN 6	12796.5	16:55:59.6	4 54 28.51	22 35 9.3	1.014698	0.705	1891.5	-0.1	44.4	-13.7	
JUN 8	12798.5	17: 3:52.7	5 2 43.62	22 47 14.9	1.014946	0.660	1891.0	0.1	17.9	-12.9	
JUN 10	12800.5	17:11:45.8	5 10 59.76	22 57 44.1	1.015178	0.615	1890.6	0.4	351.4	-12.1	
JUN 12	12802.5	17:19:38.9	5 19 16.78	23 6 36.1	1.015395	0.568	1890.2	0.6	324.9	-11.3	
JUN 14	12804.5	17:27:32.0	5 27 34.54	23 13 50.5	1.015600	0.521	1889.8	0.8	298.5	-10.4	
JUN 16	12806.5	17:35:25.1	5 35 52.91	23 19 26.7	1.015793	0.474	1889.5	1.1	272.0	-9.6	
JUN 18	12808.5	17:43:18.3	5 44 11.72	23 23 24.5	1.015973	0.426	1889.1	1.3	245.5	-8.7	
JUN 20	12810.5	17:51:11.4	5 52 30.81	23 25 43.4	1.016139	0.377	1888.8	1.6	219.0	-7.8	
JUN 22	12812.5	17:59: 4.5	6 0 50.00	23 26 23.2	1.016288	0.328	1888.6	1.8	192.6	-6.9	
JUN 24	12814.5	18: 6:57.6	6 9 9.13	23 25 23.8	1.016418	0.279	1888.3	2.0	166.1	-6.1	
JUN 26	12816.5	18:14:50.7	6 17 28.00	23 22 45.4	1.016527	0.230	1888.1	2.3	139.6	-5.2	
JUN 28	12818.5	18:22:43.8	6 25 46.41	23 18 28.2	1.016613	0.181	1887.9	2.5	113.2	-4.3</	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	12822.5	18:38:30.0	6 42 20.99	23 4 59.6	1.016714	0.082	1887.8	2.9	60.2	-2.4	
JUL 4	12824.5	18:46:23.1	6 50 36.73	22 55 49.5	1.016728	0.032	1887.7	3.2	33.7	-1.5	
JUL 6	12826.5	18:54:16.3	6 58 51.16	22 45 3.5	1.016720	-0.018	1887.7	3.4	7.3	-0.6	
JUL 8	12828.5	19: 2: 9.4	7 7 4.12	22 32 42.6	1.016691	-0.068	1887.8	3.6	340.8	0.3	
JUL 10	12830.5	19:10: 2.5	7 15 15.47	22 18 48.1	1.016644	-0.118	1887.9	3.8	314.3	1.2	
JUL 12	12832.5	19:17:55.6	7 23 25.09	22 3 21.4	1.016582	-0.168	1888.0	4.0	287.9	2.1	
JUL 14	12834.5	19:25:48.7	7 31 32.88	21 46 24.2	1.016506	-0.218	1888.1	4.2	261.4	3.0	
JUL 16	12836.5	19:33:41.8	7 39 38.73	21 27 58.0	1.016418	-0.268	1888.3	4.4	234.9	3.9	
JUL 18	12838.5	19:41:34.9	7 47 42.58	21 8 4.2	1.016315	-0.318	1888.5	4.6	208.5	4.7	
JUL 20	12840.5	19:49:28.0	7 55 44.36	20 46 44.5	1.016198	-0.367	1888.7	4.8	182.0	5.6	
JUL 22	12842.5	19:57:21.1	8 3 44.01	20 24 0.7	1.016062	-0.415	1889.0	4.9	155.5	6.5	
JUL 24	12844.5	20: 5:14.2	8 11 41.46	19 59 54.6	1.015908	-0.463	1889.3	5.1	129.1	7.3	
JUL 26	12846.5	20:13: 7.4	8 19 36.65	19 34 28.2	1.015733	-0.511	1889.6	5.3	102.6	8.2	
JUL 28	12848.5	20:21: 0.5	8 27 29.52	19 7 43.7	1.015536	-0.557	1889.9	5.4	76.2	9.0	
JUL 30	12850.5	20:28:53.6	8 35 19.99	18 39 43.4	1.015316	-0.603	1890.4	5.6	49.7	9.8	
AUG 1	12852.5	20:36:46.7	8 43 8.01	18 10 29.4	1.015073	-0.648	1890.8	5.8	23.3	10.6	
AUG 3	12854.5	20:44:39.8	8 50 53.54	17 40 4.1	1.014808	-0.693	1891.3	5.9	356.8	11.4	
AUG 5	12856.5	20:52:32.9	8 58 36.58	17 8 30.1	1.014522	-0.737	1891.8	6.0	330.4	12.2	
AUG 7	12858.5	21: 0:26.0	9 6 17.14	16 35 49.6	1.014220	-0.781	1892.4	6.2	303.9	13.0	
AUG 9	12860.5	21: 8:19.1	9 13 55.26	16 2 5.3	1.013904	-0.823	1893.0	6.3	277.5	13.7	
AUG 11	12862.5	21:16:12.2	9 21 30.99	15 27 19.7	1.013575	-0.865	1893.6	6.4	251.0	14.4	
AUG 13	12864.5	21:24: 5.4	9 29 4.41	14 51 35.2	1.013237	-0.906	1894.2	6.5	224.6	15.2	
AUG 15	12866.5	21:31:58.5	9 36 35.61	14 14 53.9	1.012889	-0.946	1894.9	6.6	198.1	15.8	
AUG 17	12868.5	21:39:51.6	9 44 4.70	13 37 18.1	1.012530	-0.985	1895.6	6.7	171.7	16.5	
AUG 19	12870.5	21:47:44.7	9 51 31.78	12 58 50.3	1.012159	-1.023	1896.3	6.8	145.3	17.2	
AUG 21	12872.5	21:55:37.8	9 58 56.96	12 19 32.7	1.011775	-1.059	1897.0	6.9	118.8	17.8	
AUG 23	12874.5	22: 3:30.9	10 6 20.32	11 39 28.0	1.011376	-1.094	1897.7	7.0	92.4	18.4	
AUG 25	12876.5	22:11:24.0	10 13 41.96	10 58 38.6	1.010961	-1.128	1898.5	7.0	66.0	19.0	
AUG 27	12878.5	22:19:17.1	10 21 1.96	10 17 7.2	1.010529	-1.160	1899.3	7.1	39.6	19.6	
AUG 29	12880.5	22:27:10.2	10 28 20.39	9 34 56.6	1.010079	-1.191	1900.2	7.1	13.1	20.2	
AUG 31	12882.5	22:35: 3.4	10 35 37.37	8 52 9.4	1.009612	-1.221	1901.0	7.2	346.7	20.7	
SEP 2	12884.5	22:42:56.5	10 42 52.99	8 8 48.4	1.009129	-1.249	1901.9	7.2	320.3	21.2	
SEP 4	12886.5	22:50:49.6	10 50 7.38	7 24 56.2	1.008633	-1.276	1902.9	7.2	293.9	21.7	
SEP 6	12888.5	22:58:42.7	10 57 20.68	6 40 35.8	1.008127	-1.302	1903.8	7.2	267.5	22.2	
SEP 8	12890.5	23: 6:35.8	11 4 33.03	5 55 49.6	1.007614	-1.327	1904.8	7.2	241.0	22.6	
SEP 10	12892.5	23:14:28.9	11 11 44.58	5 10 40.3	1.007098	-1.350	1905.8	7.2	214.6	23.0	
SEP 12	12894.5	23:22:22.0	11 18 55.54	4 25 10.1	1.006578	-1.372	1906.8	7.2	188.2	23.4	
SEP 14	12896.5	23:30:15.1	11 26 6.07	3 39 21.5	1.006055	-1.392	1907.8	7.2	161.8	23.8	
SEP 16	12898.5	23:38: 8.2	11 33 16.37	2 53 16.8	1.005528	-1.410	1908.8	7.2	135.4	24.1	
SEP 18	12900.5	23:46: 1.3	11 40 26.62	2 6 58.6	1.004997	-1.427	1909.8	7.2	109.0	24.5	
SEP 20	12902.5	23:53:54.5	11 47 36.97	1 20 29.4	1.004461	-1.441	1910.8	7.1	82.6	24.8	
SEP 22	12904.5	0: 1:47.6	11 54 47.59	0 33 52.0	1.003919	-1.454	1911.8	7.1	56.2	25.0	
SEP 24	12906.5	0: 9:40.7	12 1 58.61	0-12-51.0	1.003368	-1.465	1912.9	7.0	29.8	25.3	
SEP 26	12908.5	0:17:33.8	12 9 10.17	0-59-36.6	1.002807	-1.475	1913.9	6.9	3.4	25.5	
SEP 28	12910.5	0:25:26.9	12 16 22.43	-1-46-21.9	1.002238	-1.483	1915.0	6.9	337.0	25.7	
SEP 30	12912.5	0:33:20.0	12 23 35.52	-2-33 -4.0	1.001659	-1.489	1916.1	6.8	310.6	25.9	
OCT 2	12914.5	0:41:13.1	12 30 49.57	-3-19-39.8	1.001075	-1.493	1917.2	6.7	284.2	26.0	
OCT 4	12916.5	0:49: 6.2	12 38 4.74	-4 -6 -6.4	1.000488	-1.496	1918.4	6.6	257.8	26.1	
OCT 6	12918.5	0:56:59.3	12 45 21.17	-4-52-20.7	0.999902	-1.497	1919.5	6.5	231.5	26.2	
OCT 8	12920.5	1: 4:52.5	12 52 39.04	-5-38-20.1	0.999319	-1.497	1920.6	6.4	205.1	26.3	
OCT 10	12922.5	1:12:45.6	12 59 58.53	-6-24 -1.7	0.998741	-1.495	1921.7	6.2	178.7	26.3	
OCT 12	12924.5	1:20:38.7	13 7 19.84	-7 -9-23.0	0.998169	-1.491	1922.8	6.1	152.3	26.3	
OCT 14	12926.5	1:28:31.8	13 14 43.15	-7-54-21.1	0.997604	-1.485	1923.9	6.0	125.9	26.3	
OCT 16	12928.5	1:36:24.9	13 22 8.63	-8-38-53.3	0.997045	-1.477	1925.0	5.8	99.5	26.2	
OCT 18	12930.5	1:44:18.0	13 29 36.42	-9-22-56.7	0.996491	-1.468	1926.1	5.7	73.1	26.1	
OCT 20	12932.5	1:52:11.1	13 37 6.67	-10 -6-28.1	0.995942	-1.457	1927.1	5.5	46.8	26.0	
OCT 22	12934.5	2: 0: 4.2	13 44 39.50	-10-49-24.4	0.995396	-1.443	1928.2	5.4	20.4	25.8	
OCT 24	12936.5	2: 7:57.3	13 52 15.05	-11-31-42.5	0.994851	-1.428	1929.2	5.2	354.0	25.6	
OCT 26	12938.5	2:15:50.5	13 59 53.40	-12-13-19.0	0.994306	-1.411	1930.3	5.0	327.6	25.4	
OCT 28	12940.5	2:23:43.6	14 7 34.65	-12-54-10.5	0.993762	-1.393	1931.4	4.8	301.3	25.2	
OCT 30	12942.5	2:31:36.7	14 15 18.86	-13-34-13.5	0.993220	-1.373	1932.4	4.6	274.9	24.9	
NOV 1	12944.5	2:39:29.8	14 23 6.09	-14-13-24.8	0.992683	-1.351	1933.5	4.4	248.5	24.6	
NOV 3	12946.5	2:47:22.9	14 30 56.38	-14-51-40.8	0.992154	-1.328	1934.5	4.2	222.1	24.2	
NOV 5	12948.5	2:55:16.0	14 38 49.85	-15-28-58.4	0.991636	-1.303	1935.5	4.0	195.8	23.9	
NOV 7	12950.5	3: 3: 9.1	14 46 46.55	-16 -5-14.5	0.991131	-1.277	1936.5	3.8	169.4	23.5	
NOV 9	12952.5	3:11: 2.2	14 54 46.58	-16-40-26.1	0.990642	-1.249	1937.4	3.6	143.0	23.0	
NOV 11	12954.5	3:18:55.3	15 2 50.00	-17-14-30.2	0.990168	-1.220	1938.4	3.4	116.7	22.6	
NOV 13	12956.5	3:26:48.5	15 10 56.84	-17-47-23.8	0.989711	-1.189	1939.3	3.1	90.3	22.1	
NOV 15	12958.5	3:34:41.6	15 19 7.13	-18-19 -3.7	0.989270	-1.157	1940.1	2.9	63.9	21.5	
NOV 17	12960.5	3:42:34.7	15 27 20.85	-18-49-26.8	0.988843	-1.123	1941.0	2.7	37.6	21.0	
NOV 19	12962.5	3:50:27.8	15 35 37.99	-19-18-30.1	0.988430	-1.088	1941.8	2.4	11.2	20.4	
NOV 21	12964.5	3:58:20.9	15 43 58.51	-19-46-10.5	0.988029	-1.051	1942.6	2.2	344.8	19.8	
NOV 23	12966.5	4: 6:14.0	15 52 22.33	-20-12-24.8	0.987637	-1.013	1943.3	1.9	318.5	19.1	
NOV 25	12968.5	4:14: 7.1	16 0 49.36	-20-37-10.2	0.987254	-0.973	1944.1	1.7	292.1	18.5	
NOV 27	12970.5	4:22: 0.2	16 9 19.43	-21 0-23.6	0.986880	-0.932	1944.8	1.4	265.8	17.8	
NOV 29	12972.5	4:29:53.3	16 17 52.37	-21-22 -2.3	0.986518	-0.890	1945.5	1.2	239.4	17.0	
DEC 1	12974.5	4:37:46.4	16 26 28.00	-21-42 -3.6	0.986170	-0.847	1946.2	0.9	213.0	16.3	
DEC 3	12976.5	4:45:39.6	16 35 6.19	-22 0-25.2	0.985839	-0.804	1946.9	0.7	186.7	15.5	
DEC 5	12978.5	4:53:32.7	16 43 46.77	-22-17 -4.9	0.985527	-0.759	1947.5	0.4	160.3	14.7	
DEC 7	12980.5	5: 1:25.8	16 52 29.59	-22-32 -0.9	0.985237	-0.714	1948.1	0.2	134.0	13.9	
DEC 9	12982.5	5: 9:18.9	17 1 14.47	-22-45-11.4	0.984969	-0.667	1948.6	-0.1	107.6	13.0	
DEC 11	12984.5	5:17:12.0	17 10 1.20	-22-56-34.8	0.984724	-0.620	1949.1	-0.3	81.3	12.2	
DEC 13	12986.5	5:25: 5.1	17 18 49.57	-23 -6 -9.8	0.984502	-0.572	1949.5	-0.6	54.9	11.3	
DEC 15	12988.5	5:32:58.2	17 27 39.37	-23-13-54.9	0.984302	-0.523	1949.9	-0.9	28.6	10.4	
DEC 17	12990.5	5:40:51.3	17 36 30.35	-23-19-49.2	0.984124	-0.474	1950.3	-1.1	2.2	9.5	
DEC 19	12992.5	5:48:44.4	17 45 22.28	-23-23-51.6	0.983965	-0.423	1950.6	-1.4	335.9	8.6	
DEC 21	12994.5	5:56:37.6	17 54 14.89	-23-26 -1.4	0.983822	-0.372	1950.9	-1.6	309.5	7.6	
DEC 23	12996.5	6: 4:30.7	18 3 7.89	-23-26-18.2	0.983694	-0.321	1951.1	-1.9	283.2	6.7	
DEC 25	12998.5	6:12:23.8	18 12 0.96	-23-24-42.0	0.983579	-0.268	1951.4	-2.1	256.8	5.7	
DEC 27	13000.5	6:20:16.9	18 20 53.74	-23-21-12.8	0.983479	-0.216	1951.6	-2.4	230.5	4.8	

2004 SUN

Geocentric Planetary Ephemeris

2004 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 2	13006.5	6:43:56.2	18 47 27.51	-22-59-31.6	0.983287	-0.059	1951.9	-3.1	151.4	1.9
JAN 4	13008.5	6:51:49.3	18 56 16.40	-22-48-36.4	0.983267	-0.006	1952.0	-3.3	125.1	0.9
JAN 6	13010.5	6:59:42.4	19 5 3.73	-22-35-52.6	0.983270	0.046	1952.0	-3.5	98.8	-0.1
JAN 8	13012.5	7: 7:35.6	19 13 49.28	-22-21-21.7	0.983298	0.099	1951.9	-3.7	72.4	-1.0
JAN 10	13014.5	7:15:28.7	19 22 32.85	-22 -5 -5.5	0.983352	0.151	1951.8	-4.0	46.1	-2.0
JAN 12	13016.5	7:23:21.8	19 31 14.28	-21-47 -5.8	0.983431	0.203	1951.7	-4.2	19.7	-2.9
JAN 14	13018.5	7:31:14.9	19 39 53.39	-21-27-24.4	0.983533	0.254	1951.4	-4.4	353.4	-3.9
JAN 16	13020.5	7:39: 8.0	19 48 30.05	-21 -6 -3.4	0.983657	0.306	1951.2	-4.6	327.1	-4.8
JAN 18	13022.5	7:47: 1.1	19 57 4.13	-20-43 -5.2	0.983800	0.358	1950.9	-4.8	300.7	-5.8
JAN 20	13024.5	7:54:54.2	20 5 35.47	-20-18-32.3	0.983960	0.409	1950.6	-5.0	274.4	-6.7
JAN 22	13026.5	8: 2:47.3	20 14 3.90	-19-52-27.5	0.984133	0.460	1950.3	-5.2	248.1	-7.6
JAN 24	13028.5	8:10:40.4	20 22 29.27	-19-24-53.6	0.984319	0.510	1949.9	-5.3	221.7	-8.5
JAN 26	13030.5	8:18:33.5	20 30 51.46	-18-55-53.7	0.984520	0.559	1949.5	-5.5	195.4	-9.4
JAN 28	13032.5	8:26:26.7	20 39 10.39	-18-25-30.7	0.984737	0.608	1949.1	-5.7	169.1	-10.2
JAN 30	13034.5	8:34:19.8	20 47 26.03	-17-53-47.9	0.984971	0.655	1948.6	-5.8	142.7	-11.1
FEB 1	13036.5	8:42:12.9	20 55 38.34	-17-20-48.5	0.985223	0.702	1948.1	-6.0	116.4	-11.9
FEB 3	13038.5	8:50: 6.0	21 3 47.33	-16-46-35.8	0.985497	0.748	1947.6	-6.1	90.1	-12.7
FEB 5	13040.5	8:57:59.1	21 11 53.02	-16-11-13.1	0.985791	0.792	1947.0	-6.3	63.7	-13.5
FEB 7	13042.5	9: 5:52.2	21 19 55.45	-15-34-43.6	0.986108	0.836	1946.4	-6.4	37.4	-14.3
FEB 9	13044.5	9:13:45.3	21 27 54.67	-14-57-10.4	0.986447	0.878	1945.7	-6.5	11.1	-15.0
FEB 11	13046.5	9:21:38.4	21 35 50.77	-14-18-36.6	0.986807	0.919	1945.0	-6.6	344.7	-15.8
FEB 13	13048.5	9:29:31.5	21 43 43.85	-13-39 -5.3	0.987186	0.960	1944.2	-6.7	318.4	-16.5
FEB 15	13050.5	9:37:24.7	21 51 34.00	-12-58-39.7	0.987581	0.999	1943.4	-6.8	292.1	-17.2
FEB 17	13052.5	9:45:17.8	21 59 21.31	-12-17-23.1	0.987989	1.038	1942.6	-6.9	265.7	-17.8
FEB 19	13054.5	9:53:10.9	22 7 5.82	-11-35-18.9	0.988408	1.075	1941.8	-7.0	239.4	-18.5
FEB 21	13056.5	10: 1: 4.0	22 14 47.60	-10-52-30.7	0.988835	1.111	1941.0	-7.0	213.1	-19.1
FEB 23	13058.5	10: 8:57.1	22 22 26.74	-10 -9 -1.9	0.989269	1.145	1940.1	-7.1	186.7	-19.7
FEB 25	13060.5	10:16:50.2	22 30 3.33	-9-24-56.0	0.989712	1.178	1939.3	-7.1	160.4	-20.3
FEB 27	13062.5	10:24:43.3	22 37 37.51	-8-40-16.2	0.990165	1.209	1938.4	-7.2	134.0	-20.8
FEB 29	13064.5	10:32:36.4	22 45 9.39	-7-55 -5.9	0.990628	1.239	1937.5	-7.2	107.7	-21.4
MAR 2	13066.5	10:40:29.5	22 52 39.13	-7 -9-28.5	0.991102	1.267	1936.5	-7.2	81.4	-21.9
MAR 4	13068.5	10:48:22.7	23 0 6.86	-6-23-27.2	0.991590	1.293	1935.6	-7.2	55.0	-22.3
MAR 6	13070.5	10:56:15.8	23 7 32.74	-5-37 -5.0	0.992093	1.318	1934.6	-7.2	28.7	-22.8
MAR 8	13072.5	11: 4: 8.9	23 14 56.96	-4-50-24.8	0.992609	1.341	1933.6	-7.2	2.3	-23.2
MAR 10	13074.5	11:12: 2.0	23 22 19.70	-4 -3-29.6	0.993140	1.362	1932.6	-7.2	336.0	-23.6
MAR 12	13076.5	11:19:55.1	23 29 41.18	-3-16-21.9	0.993684	1.382	1931.5	-7.2	309.6	-24.0
MAR 14	13078.5	11:27:48.2	23 37 1.58	-2-29 -4.6	0.994237	1.400	1930.4	-7.2	283.2	-24.3
MAR 16	13080.5	11:35:41.3	23 44 21.04	-1-41-40.7	0.994797	1.417	1929.3	-7.1	256.9	-24.6
MAR 18	13082.5	11:43:34.4	23 51 39.72	0-54-13.2	0.995360	1.432	1928.3	-7.1	230.5	-24.9
MAR 20	13084.5	11:51:27.5	23 58 57.74	0 -6-45.3	0.995923	1.446	1927.2	-7.0	204.2	-25.2
MAR 22	13086.5	11:59:20.6	0 6 15.25	0 40 39.9	0.996486	1.457	1926.1	-7.0	177.8	-25.4
MAR 24	13088.5	12: 7:13.8	0 13 32.40	1 27 59.5	0.997048	1.467	1925.0	-6.9	151.4	-25.6
MAR 26	13090.5	12:15: 6.9	0 20 49.32	2 15 10.3	0.997609	1.476	1923.9	-6.8	125.0	-25.8
MAR 28	13092.5	12:22:60.0	0 28 6.18	3 2 9.3	0.998169	1.482	1922.8	-6.7	98.7	-26.0
MAR 30	13094.5	12:30:53.1	0 35 23.10	3 48 53.7	0.998731	1.486	1921.8	-6.6	72.3	-26.1
APR 1	13096.5	12:38:46.2	0 42 40.24	4 35 20.4	0.999295	1.489	1920.7	-6.5	45.9	-26.2
APR 3	13098.5	12:46:39.3	0 49 57.76	5 21 26.9	0.999862	1.489	1919.6	-6.4	19.5	-26.2
APR 5	13100.5	12:54:32.4	0 57 15.83	6 7 10.3	1.000434	1.488	1918.5	-6.3	353.1	-26.3
APR 7	13102.5	13: 2:25.5	1 4 34.63	6 52 28.2	1.001011	1.485	1917.4	-6.2	326.7	-26.3
APR 9	13104.5	13:10:18.6	1 11 54.36	7 37 18.2	1.001592	1.480	1916.3	-6.0	300.3	-26.3
APR 11	13106.5	13:18:11.8	1 19 15.19	8 21 37.9	1.002175	1.473	1915.1	-5.9	273.9	-26.2
APR 13	13108.5	13:26: 4.9	1 26 37.25	9 5 24.6	1.002757	1.465	1914.0	-5.7	247.5	-26.1
APR 15	13110.5	13:33:58.0	1 34 0.66	9 48 35.5	1.003334	1.456	1912.9	-5.6	221.1	-26.0
APR 17	13112.5	13:41:51.1	1 41 25.52	10 31 7.7	1.003903	1.445	1911.8	-5.4	194.7	-25.9
APR 19	13114.5	13:49:44.2	1 48 51.96	11 12 58.5	1.004463	1.432	1910.8	-5.3	168.3	-25.7
APR 21	13116.5	13:57:37.3	1 56 20.06	11 54 5.0	1.005013	1.418	1909.7	-5.1	141.9	-25.5
APR 23	13118.5	14: 5:30.4	2 3 49.90	12 34 24.4	1.005551	1.402	1908.7	-4.9	115.5	-25.3
APR 25	13120.5	14:13:23.5	2 11 21.55	13 13 53.9	1.006079	1.384	1907.7	-4.7	89.0	-25.0
APR 27	13122.5	14:21:16.6	2 18 55.09	13 52 30.9	1.006596	1.364	1906.7	-4.5	62.6	-24.7
APR 29	13124.5	14:29: 9.8	2 26 30.57	14 30 12.5	1.007106	1.343	1905.8	-4.3	36.2	-24.4
MAY 1	13126.5	14:37: 2.9	2 34 8.06	15 6 56.2	1.007607	1.320	1904.8	-4.1	9.8	-24.1
MAY 3	13128.5	14:44:56.0	2 41 47.64	15 42 39.5	1.008104	1.296	1903.9	-3.9	343.3	-23.7
MAY 5	13130.5	14:52:49.1	2 49 29.38	16 17 20.1	1.008596	1.269	1903.0	-3.7	316.9	-23.3
MAY 7	13132.5	15: 0:42.2	2 57 13.39	16 50 56.0	1.009084	1.242	1902.0	-3.5	290.4	-22.9
MAY 9	13134.5	15: 8:35.3	3 4 59.71	17 23 24.8	1.009566	1.213	1901.1	-3.3	264.0	-22.4
MAY 11	13136.5	15:16:28.4	3 12 48.37	17 54 44.3	1.010041	1.183	1900.2	-3.1	237.6	-21.9
MAY 13	13138.5	15:24:21.5	3 20 39.38	18 24 52.1	1.010504	1.152	1899.4	-2.9	211.1	-21.4
MAY 15	13140.5	15:32:14.6	3 28 32.75	18 53 45.8	1.010953	1.119	1898.5	-2.6	184.7	-20.9
MAY 17	13142.5	15:40: 7.7	3 36 28.43	19 21 22.9	1.011385	1.086	1897.7	-2.4	158.2	-20.3
MAY 19	13144.5	15:48: 0.9	3 44 26.39	19 47 41.3	1.011800	1.051	1896.9	-2.2	131.7	-19.7
MAY 21	13146.5	15:55:54.0	3 52 26.54	20 12 38.7	1.012195	1.015	1896.2	-1.9	105.3	-19.1
MAY 23	13148.5	16: 3:47.1	4 0 28.81	20 36 13.0	1.012572	0.978	1895.5	-1.7	78.8	-18.5
MAY 25	13150.5	16:11:40.2	4 8 33.09	20 58 22.2	1.012931	0.939	1894.8	-1.5	52.4	-17.8
MAY 27	13152.5	16:19:33.3	4 16 39.26	21 19 4.3	1.013272	0.900	1894.2	-1.2	25.9	-17.1
MAY 29	13154.5	16:27:26.4	4 24 47.22	21 38 17.7	1.013597	0.859	1893.6	-1.0	359.4	-16.4
MAY 31	13156.5	16:35:19.5	4 32 56.87	21 56 0.7	1.013908	0.817	1893.0	-0.7	333.0	-15.7
JUN 2	13158.5	16:43:12.6	4 41 8.11	22 12 11.9	1.014208	0.774	1892.4	-0.5	306.5	-14.9
JUN 4	13160.5	16:51: 5.7	4 49 20.86	22 26 50.2	1.014497	0.731	1891.9	-0.3	280.0	-14.2
JUN 6	13162.5	16:58:58.9	4 57 35.00	22 39 54.6	1.014775	0.686	1891.4	0.0	253.6	-13.4
JUN 8	13164.5	17: 6:52.0	5 5 50.40	22 51 23.9	1.015041	0.641	1890.9	0.2	227.1	-12.6
JUN 10	13166.5	17:14:45.1	5 14 6.92	23 1 17.1	1.015292	0.595	1890.4	0.5	200.6	-11.8
JUN 12	13168.5	17:22:38.2	5 22 24.41	23 9 33.1	1.015526	0.549	1890.0	0.7	174.2	-10.9
JUN 14	13170.5	17:30:31.3	5 30 42.69	23 16 11.2	1.015739	0.502	1889.6	0.9	147.7	-10.1
JUN 16	13172.5	17:38:24.4	5 39 1.56	23 21 10.8	1.015930	0.455	1889.2	1.2	121.2	-9.2
JUN 18	13174.5	17:46:17.5	5 47 20.83	23 24 31.5	1.016098	0.407	1888.9	1.4	94.7	-8.4
JUN 20	13176.5	17:54:10.6	5 55 40.25	23 26 12.9	1.016242	0.359	1888.6	1.6	68.3	-7.5
JUN 22	13178.5	18: 2: 3.7	6 3 59.61	23 26 15.0	1.016364	0.311	1888.4	1.9	41.8	-6.6
JUN 24	13180.5	18: 9:56.9	6 12 18.69	23 24 37.8	1.016463	0.262	1888.2	2.1	15.3	-5.7
JUN 26	13182.5	18:17:50.0	6 20 37.28	23 21 21.6	1.016541	0.212	1888.1	2.3	348.8	-4.8
JUN 28	13184.5	18:25:43.1	6 28 55.20	23 16 26.7	1.016601	0.162	1888.0	2.6	322.4	-3.9
JUN 30	13186.5	18:33:36.2	6 37 12.27	23 9 53.8	1.016644	0.112	1887.9	2.8	295.9	-3.0

2004 SUN

Geocentric Planetary Ephemeris

2004 SUN

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	13188.5	18:41:29.3	6 45 28.36	23 1 43.9	1.016673	0.062	1887.8	3.0	269.4	-2.1	
JUL 4	13190.5	18:49:22.4	6 53 43.32	22 51 57.7	1.016690	0.011	1887.8	3.2	242.9	-1.2	
JUL 6	13192.5	18:57:15.5	7 1 57.01	22 40 36.4	1.016693	-0.039	1887.8	3.4	216.5	-0.3	
JUL 8	13194.5	19: 5: 8.6	7 10 9.31	22 27 40.6	1.016681	-0.089	1887.8	3.7	190.0	0.6	
JUL 10	13196.5	19:13: 1.7	7 18 20.09	22 13 11.6	1.016651	-0.139	1887.9	3.9	163.5	1.5	
JUL 12	13198.5	19:20:54.8	7 26 29.24	21 57 10.7	1.016602	-0.189	1888.0	4.1	137.1	2.4	
JUL 14	13200.5	19:28:48.0	7 34 36.61	21 39 39.3	1.016531	-0.238	1888.1	4.3	110.6	3.3	
JUL 16	13202.5	19:36:41.1	7 42 42.07	21 20 39.0	1.016437	-0.288	1888.3	4.5	84.1	4.2	
JUL 18	13204.5	19:44:34.2	7 50 45.48	21 0 11.7	1.016319	-0.336	1888.5	4.6	57.7	5.1	
JUL 20	13206.5	19:52:27.3	7 58 46.71	20 38 19.1	1.016178	-0.385	1888.7	4.8	31.2	5.9	
JUL 22	13208.5	20: 0:20.4	8 6 45.66	20 15 3.1	1.016014	-0.433	1889.1	5.0	4.8	6.8	
JUL 24	13210.5	20: 8:13.5	8 14 42.23	19 50 25.9	1.015828	-0.480	1889.4	5.2	338.3	7.7	
JUL 26	13212.5	20:16: 6.6	8 22 36.39	19 24 29.6	1.015622	-0.528	1889.8	5.3	311.8	8.5	
JUL 28	13214.5	20:23:59.7	8 30 28.09	18 57 16.5	1.015400	-0.574	1890.2	5.5	285.4	9.3	
JUL 30	13216.5	20:31:52.8	8 38 17.33	18 28 48.7	1.015163	-0.621	1890.6	5.7	258.9	10.1	
AUG 1	13218.5	20:39:46.0	8 46 4.10	17 59 8.7	1.014915	-0.666	1891.1	5.8	232.5	10.9	
AUG 3	13220.5	20:47:39.1	8 53 48.43	17 28 18.6	1.014656	-0.711	1891.6	5.9	206.0	11.7	
AUG 5	13222.5	20:55:32.2	9 1 30.37	16 56 20.3	1.014385	-0.756	1892.1	6.1	179.6	12.5	
AUG 7	13224.5	21: 3:25.3	9 9 9.99	16 23 16.1	1.014100	-0.799	1892.6	6.2	153.1	13.2	
AUG 9	13226.5	21:11:18.4	9 16 47.33	15 49 8.3	1.013800	-0.841	1893.2	6.3	126.7	14.0	
AUG 11	13228.5	21:19:11.5	9 24 22.43	15 13 59.2	1.013483	-0.882	1893.8	6.4	100.2	14.7	
AUG 13	13230.5	21:27: 4.6	9 31 55.33	14 37 51.4	1.013148	-0.922	1894.4	6.6	73.8	15.4	
AUG 15	13232.5	21:34:57.7	9 39 26.06	14 0 47.4	1.012793	-0.961	1895.1	6.7	47.4	16.1	
AUG 17	13234.5	21:42:50.8	9 46 54.67	13 22 49.9	1.012419	-0.999	1895.8	6.7	20.9	16.8	
AUG 19	13236.5	21:50:44.0	9 54 21.22	12 44 1.4	1.012025	-1.035	1896.5	6.8	354.5	17.4	
AUG 21	13238.5	21:58:37.1	10 1 45.77	12 4 24.6	1.011612	-1.071	1897.3	6.9	328.1	18.0	
AUG 23	13240.5	22: 6:30.2	10 9 8.42	11 24 2.3	1.011183	-1.106	1898.1	7.0	301.6	18.7	
AUG 25	13242.5	22:14:23.3	10 16 29.27	10 42 57.0	1.010740	-1.139	1898.9	7.0	275.2	19.2	
AUG 27	13244.5	22:22:16.4	10 23 48.43	10 1 11.6	1.010287	-1.171	1899.8	7.1	248.8	19.8	
AUG 29	13246.5	22:30: 9.5	10 31 6.02	9 18 48.5	1.009826	-1.203	1900.6	7.1	222.4	20.4	
AUG 31	13248.5	22:38: 2.6	10 38 22.19	8 35 50.2	1.009360	-1.232	1901.5	7.2	195.9	20.9	
SEP 2	13250.5	22:45:55.7	10 45 37.12	7 52 18.9	1.008888	-1.261	1902.4	7.2	169.5	21.4	
SEP 4	13252.5	22:53:48.8	10 52 50.99	7 8 16.8	1.008410	-1.288	1903.3	7.2	143.1	21.9	
SEP 6	13254.5	23: 1:42.0	11 0 3.95	6 23 46.4	1.007924	-1.313	1904.2	7.2	116.7	22.3	
SEP 8	13256.5	23: 9:35.1	11 7 16.16	5 38 50.3	1.007429	-1.337	1905.2	7.2	90.3	22.8	
SEP 10	13258.5	23:17:28.2	11 14 27.74	4 53 31.0	1.006925	-1.359	1906.1	7.2	63.9	23.2	
SEP 12	13260.5	23:25:21.3	11 21 38.83	4 7 51.3	1.006409	-1.379	1907.1	7.2	37.5	23.6	
SEP 14	13262.5	23:33:14.4	11 28 49.57	3 21 53.9	1.005881	-1.398	1908.1	7.2	11.1	23.9	
SEP 16	13264.5	23:41: 7.5	11 36 0.08	2 35 41.6	1.005340	-1.415	1909.1	7.2	344.7	24.3	
SEP 18	13266.5	23:49: 0.6	11 43 10.52	1 49 17.3	1.004788	-1.430	1910.2	7.1	318.3	24.6	
SEP 20	13268.5	23:56:53.7	11 50 21.02	1 2 43.7	1.004226	-1.444	1911.2	7.1	291.9	24.9	
SEP 22	13270.5	0: 4:46.8	11 57 31.72	0 16 3.7	1.003656	-1.457	1912.3	7.0	265.5	25.1	
SEP 24	13272.5	0:12:39.9	12 4 42.78	0-30-39.6	1.003082	-1.467	1913.4	7.0	239.1	25.4	
SEP 26	13274.5	0:20:33.1	12 11 54.35	-1-17-23.7	1.002507	-1.477	1914.5	6.9	212.7	25.6	
SEP 28	13276.5	0:28:26.2	12 19 6.62	-2 -4 -5.9	1.001933	-1.484	1915.6	6.8	186.3	25.8	
SEP 30	13278.5	0:36:19.3	12 26 19.80	-2-50-43.8	1.001363	-1.490	1916.7	6.8	159.9	25.9	
OCT 2	13280.5	0:44:12.4	12 33 34.09	-3-37-14.9	1.000796	-1.495	1917.8	6.7	133.5	26.1	
OCT 4	13282.5	0:52: 5.5	12 40 49.67	-4-23-36.6	1.000232	-1.497	1918.9	6.6	107.1	26.2	
OCT 6	13284.5	0:59:58.6	12 48 6.72	-5 -9-46.0	0.999669	-1.497	1919.9	6.4	80.7	26.2	
OCT 8	13286.5	1: 7:51.7	12 55 25.39	-5-55-40.4	0.999107	-1.496	1921.0	6.3	54.3	26.3	
OCT 10	13288.5	1:15:44.8	13 2 45.83	-6-41-16.8	0.998544	-1.493	1922.1	6.2	27.9	26.3	
OCT 12	13290.5	1:23:37.9	13 10 8.19	-7-26-32.0	0.997979	-1.487	1923.2	6.1	1.5	26.3	
OCT 14	13292.5	1:31:31.1	13 17 32.60	-8-11-23.0	0.997411	-1.480	1924.3	5.9	335.2	26.2	
OCT 16	13294.5	1:39:24.2	13 24 59.19	-8-55-46.7	0.996841	-1.471	1925.4	5.8	308.8	26.2	
OCT 18	13296.5	1:47:17.3	13 32 28.09	-9-39-39.6	0.996268	-1.461	1926.5	5.6	282.4	26.1	
OCT 20	13298.5	1:55:10.4	13 39 59.38	-10-22-58.6	0.995696	-1.448	1927.6	5.5	256.0	25.9	
OCT 22	13300.5	2: 3: 3.5	13 47 33.17	-11 -5-40.3	0.995128	-1.435	1928.7	5.3	229.6	25.7	
OCT 24	13302.5	2:10:56.6	13 55 9.57	-11-47-41.6	0.994566	-1.419	1929.8	5.1	203.3	25.6	
OCT 26	13304.5	2:18:49.7	14 2 48.73	-12-28-59.3	0.994014	-1.402	1930.9	4.9	176.9	25.3	
OCT 28	13306.5	2:26:42.8	14 10 30.79	-13 -9-30.6	0.993474	-1.384	1931.9	4.7	150.5	25.1	
OCT 30	13308.5	2:34:35.9	14 18 15.88	-13-49-12.6	0.992947	-1.364	1932.9	4.5	124.1	24.8	
NOV 1	13310.5	2:42:29.1	14 26 4.13	-14-28 -2.2	0.992433	-1.342	1933.9	4.3	97.8	24.5	
NOV 3	13312.5	2:50:22.2	14 33 55.61	-15 -5-56.3	0.991931	-1.318	1934.9	4.1	71.4	24.1	
NOV 5	13314.5	2:58:15.3	14 41 50.41	-15-42-51.7	0.991441	-1.293	1935.9	3.9	45.0	23.7	
NOV 7	13316.5	3: 6: 8.4	14 49 48.59	-16-18-45.1	0.990961	-1.266	1936.8	3.7	18.7	23.3	
NOV 9	13318.5	3:14: 1.5	14 57 50.19	-16-53-33.3	0.990490	-1.237	1937.7	3.5	352.3	22.9	
NOV 11	13320.5	3:21:54.6	15 5 55.22	-17-27-12.8	0.990027	-1.206	1938.6	3.3	325.9	22.4	
NOV 13	13322.5	3:29:47.7	15 14 3.71	-17-59-40.3	0.989569	-1.174	1939.5	3.0	299.6	21.9	
NOV 15	13324.5	3:37:40.8	15 22 15.60	-18-30-52.6	0.989118	-1.141	1940.4	2.8	273.2	21.3	
NOV 17	13326.5	3:45:33.9	15 30 30.82	-19 0-46.3	0.988675	-1.106	1941.3	2.6	246.8	20.8	
NOV 19	13328.5	3:53:27.0	15 38 49.29	-19-29-18.3	0.988243	-1.070	1942.1	2.3	220.5	20.2	
NOV 21	13330.5	4: 1:20.2	15 47 10.95	-19-56-25.3	0.987824	-1.033	1943.0	2.1	194.1	19.5	
NOV 23	13332.5	4: 9:13.3	15 55 35.73	-20-22 -4.7	0.987422	-0.994	1943.8	1.8	167.7	18.9	
NOV 25	13334.5	4:17: 6.4	16 4 3.58	-20-46-13.7	0.987039	-0.955	1944.5	1.6	141.4	18.2	
NOV 27	13336.5	4:24:59.5	16 12 34.42	-21 -8-49.9	0.986677	-0.914	1945.2	1.3	115.0	17.5	
NOV 29	13338.5	4:32:52.6	16 21 8.16	-21-29-50.9	0.986335	-0.873	1945.9	1.1	88.7	16.7	
DEC 1	13340.5	4:40:45.7	16 29 44.65	-21-49-14.2	0.986014	-0.830	1946.5	0.8	62.3	16.0	
DEC 3	13342.5	4:48:38.8	16 38 23.76	-22 -6-57.6	0.985714	-0.786	1947.1	0.6	35.9	15.2	
DEC 5	13344.5	4:56:31.9	16 47 5.32	-22-22-58.9	0.985433	-0.741	1947.7	0.3	9.6	14.4	
DEC 7	13346.5	5: 4:25.0	16 55 49.16	-22-37-15.8	0.985169	-0.694	1948.2	0.1	343.2	13.6	
DEC 9	13348.5	5:12:18.2	17 4 35.06	-22-49-46.6	0.984922	-0.647	1948.7	-0.2	316.9	12.7	
DEC 11	13350.5	5:20:11.3	17 13 22.81	-23 0-29.6	0.984688	-0.599	1949.2	-0.4	290.5	11.8	
DEC 13	13352.5	5:28: 4.4	17 22 12.13	-23 -9-23.2	0.984467	-0.550	1949.6	-0.7	264.2	11.0	
DEC 15	13354.5	5:35:57.5	17 31 2.70	-23-16-26.3	0.984259	-0.500	1950.0	-0.9	237.8	10.1	
DEC 17	13356.5	5:43:50.6	17 39 54.21	-23-21-37.6	0.984066	-0.450	1950.4	-1.2	211.5	9.1	
DEC 19	13358.5	5:51:43.7	17 48 46.37	-23-24-56.6	0.983889	-0.399	1950.7	-1.5	185.1	8.2	
DEC 21	13360.5	5:59:36.8	17 57 38.93	-23-26-22.7	0.983733	-0.349	1951.0	-1.7	158.8	7.3	
DEC 23	13362.5	6: 7:29.9	18 6 31.64	-23-25-55.8	0.983599	-0.297	1951.3	-2.0	132.4	6.3	
DEC 25	13364.5	6:15:23.0	18 15 24.25	-23-23-36.0	0.983489	-0.246	1951.5	-2.2	106.1	5.4	
DEC 27	13366.5	6:23:16.2	18 24 16.51	-23-19-23.6	0.983404	-0.194	1951.7	-2.4	79.7	4.4</	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 2	13372.5	6:46:55.5	18 50 48.68	-22-55-36.6	0.983297	-0.038	1951.9	-3.2	0.7	1.5	
JAN 4	13374.5	6:54:48.6	18 59 37.09	-22-44 -0.4	0.983307	0.015	1951.9	-3.4	334.4	0.5	
JAN 6	13376.5	7: 2:41.7	19 8 23.97	-22-30-35.7	0.983338	0.068	1951.8	-3.6	308.0	-0.4	
JAN 8	13378.5	7:10:34.8	19 17 9.11	-22-15-24.2	0.983386	0.121	1951.7	-3.8	281.7	-1.4	
JAN 10	13380.5	7:18:27.9	19 25 52.26	-21-58-27.6	0.983450	0.173	1951.6	-4.0	255.4	-2.4	
JAN 12	13382.5	7:26:21.0	19 34 33.17	-21-39-47.9	0.983528	0.226	1951.5	-4.3	229.0	-3.3	
JAN 14	13384.5	7:34:14.1	19 43 11.57	-21-19-27.4	0.983620	0.278	1951.3	-4.5	202.7	-4.3	
JAN 16	13386.5	7:42: 7.3	19 51 47.30	-20-57-28.4	0.983728	0.330	1951.1	-4.7	176.4	-5.2	
JAN 18	13388.5	7:50: 0.4	20 0 20.20	-20-33-53.5	0.983854	0.381	1950.8	-4.9	150.0	-6.1	
JAN 20	13390.5	7:57:53.5	20 8 50.16	-20 -8-45.4	0.984001	0.432	1950.5	-5.0	123.7	-7.0	
JAN 22	13392.5	8: 5:46.6	20 17 17.09	-19-42 -6.9	0.984170	0.481	1950.2	-5.2	97.3	-7.9	
JAN 24	13394.5	8:13:39.7	20 25 40.90	-19-14 -0.9	0.984362	0.531	1949.8	-5.4	71.0	-8.8	
JAN 26	13396.5	8:21:32.8	20 34 1.54	-18-44-30.3	0.984578	0.579	1949.4	-5.6	44.7	-9.7	
JAN 28	13398.5	8:29:25.9	20 42 18.98	-18-13-37.9	0.984817	0.627	1948.9	-5.7	18.3	-10.6	
JAN 30	13400.5	8:37:19.0	20 50 33.20	-17-41-26.8	0.985079	0.673	1948.4	-5.9	352.0	-11.4	
FEB 1	13402.5	8:45:12.1	20 58 44.21	-17 -7-59.9	0.985363	0.720	1947.8	-6.0	325.7	-12.2	
FEB 3	13404.5	8:53: 5.3	21 6 52.04	-16-33-20.2	0.985666	0.765	1947.2	-6.2	299.3	-13.0	
FEB 5	13406.5	9: 0:58.4	21 14 56.71	-15-57-30.8	0.985985	0.810	1946.6	-6.3	273.0	-13.8	
FEB 7	13408.5	9: 8:51.5	21 22 58.23	-15-20-35.2	0.986318	0.853	1945.9	-6.4	246.7	-14.6	
FEB 9	13410.5	9:16:44.6	21 30 56.58	-14-42-36.8	0.986662	0.896	1945.3	-6.5	220.4	-15.3	
FEB 11	13412.5	9:24:37.7	21 38 51.77	-14 -3-39.0	0.987016	0.938	1944.6	-6.6	194.0	-16.0	
FEB 13	13414.5	9:32:30.8	21 46 43.84	-13-23-45.5	0.987380	0.978	1943.8	-6.7	167.7	-16.8	
FEB 15	13416.5	9:40:23.9	21 54 32.87	-12-42-59.6	0.987756	1.017	1943.1	-6.8	141.3	-17.4	
FEB 17	13418.5	9:48:17.0	22 2 18.93	-12 -1-24.8	0.988146	1.055	1942.3	-6.9	115.0	-18.1	
FEB 19	13420.5	9:56:10.1	22 10 2.13	-11-19 -4.6	0.988550	1.091	1941.5	-7.0	88.7	-18.7	
FEB 21	13422.5	10: 4: 3.3	22 17 42.59	-10-36 -2.2	0.988972	1.125	1940.7	-7.1	62.3	-19.3	
FEB 23	13424.5	10:11:56.4	22 25 20.43	-9-52-21.0	0.989410	1.159	1939.9	-7.1	36.0	-19.9	
FEB 25	13426.5	10:19:49.5	22 32 55.80	-9 -8 -3.9	0.989866	1.190	1939.0	-7.2	9.7	-20.5	
FEB 27	13428.5	10:27:42.6	22 40 28.85	-8-23-14.1	0.990338	1.220	1938.0	-7.2	343.3	-21.0	
MAR 1	13430.5	10:35:35.7	22 47 59.77	-7-37-54.5	0.990827	1.249	1937.1	-7.2	317.0	-21.6	
MAR 3	13432.5	10:43:28.8	22 55 28.72	-6-52 -8.0	0.991329	1.276	1936.1	-7.2	290.6	-22.0	
MAR 5	13434.5	10:51:21.9	23 2 55.87	-6 -5-57.7	0.991843	1.302	1935.1	-7.2	264.3	-22.5	
MAR 7	13436.5	10:59:15.0	23 10 21.35	-5-19-26.6	0.992365	1.327	1934.1	-7.2	237.9	-22.9	
MAR 9	13438.5	11: 7: 8.1	23 17 45.29	-4-32-38.2	0.992891	1.350	1933.1	-7.2	211.6	-23.4	
MAR 11	13440.5	11:15: 1.2	23 25 7.81	-3-45-35.6	0.993420	1.371	1932.0	-7.2	185.2	-23.7	
MAR 13	13442.5	11:22:54.4	23 32 29.04	-2-58-22.1	0.993950	1.391	1931.0	-7.2	158.9	-24.1	
MAR 15	13444.5	11:30:47.5	23 39 49.13	-2-11 -0.9	0.994483	1.409	1930.0	-7.2	132.5	-24.4	
MAR 17	13446.5	11:38:40.6	23 47 8.23	-1-23-35.1	0.995020	1.425	1928.9	-7.1	106.1	-24.8	
MAR 19	13448.5	11:46:33.7	23 54 26.50	0-36 -8.0	0.995561	1.439	1927.9	-7.1	79.8	-25.0	
MAR 21	13450.5	11:54:26.8	0 1 44.08	0 11 17.7	0.996108	1.452	1926.8	-7.0	53.4	-25.3	
MAR 23	13452.5	12: 2:19.9	0 9 1.16	0 58 39.0	0.996663	1.462	1925.7	-6.9	27.0	-25.5	
MAR 25	13454.5	12:10:13.0	0 16 17.90	1 45 53.2	0.997225	1.471	1924.6	-6.9	0.7	-25.7	
MAR 27	13456.5	12:18: 6.1	0 23 34.49	2 32 57.6	0.997796	1.477	1923.5	-6.8	334.3	-25.9	
MAR 29	13458.5	12:25:59.2	0 30 51.15	3 19 49.6	0.998374	1.482	1922.4	-6.7	307.9	-26.0	
MAR 31	13460.5	12:33:52.4	0 38 8.05	4 6 26.8	0.998958	1.486	1921.3	-6.6	281.5	-26.1	
APR 2	13462.5	12:41:45.5	0 45 25.37	4 52 46.5	0.999546	1.488	1920.2	-6.5	255.1	-26.2	
APR 4	13464.5	12:49:38.6	0 52 43.26	5 38 45.9	1.000134	1.488	1919.0	-6.4	228.8	-26.3	
APR 6	13466.5	12:57:31.7	1 0 1.85	6 24 22.1	1.000719	1.486	1917.9	-6.2	202.4	-26.3	
APR 8	13468.5	13: 5:24.8	1 7 21.28	7 9 32.1	1.001298	1.483	1916.8	-6.1	176.0	-26.3	
APR 10	13470.5	13:13:17.9	1 14 41.66	7 54 13.1	1.001870	1.478	1915.7	-6.0	149.6	-26.2	
APR 12	13472.5	13:21:11.0	1 22 3.12	8 38 22.1	1.002434	1.472	1914.7	-5.8	123.2	-26.2	
APR 14	13474.5	13:29: 4.1	1 29 25.75	9 21 56.2	1.002990	1.464	1913.6	-5.7	96.8	-26.1	
APR 16	13476.5	13:36:57.2	1 36 49.68	10 4 52.6	1.003540	1.453	1912.5	-5.5	70.4	-26.0	
APR 18	13478.5	13:44:50.4	1 44 14.99	10 47 8.5	1.004085	1.441	1911.5	-5.4	43.9	-25.8	
APR 20	13480.5	13:52:43.5	1 51 41.81	11 28 41.2	1.004627	1.427	1910.5	-5.2	17.5	-25.6	
APR 22	13482.5	14: 0:36.6	1 59 10.26	12 9 28.1	1.005165	1.412	1909.4	-5.0	351.1	-25.4	
APR 24	13484.5	14: 8:29.7	2 6 40.47	12 49 26.8	1.005702	1.394	1908.4	-4.8	324.7	-25.2	
APR 26	13486.5	14:16:22.8	2 14 12.56	13 28 34.9	1.006238	1.375	1907.4	-4.7	298.3	-24.9	
APR 28	13488.5	14:24:15.9	2 21 46.66	14 6 50.1	1.006772	1.355	1906.4	-4.5	271.8	-24.6	
APR 30	13490.5	14:32: 9.0	2 29 22.86	14 44 10.0	1.007301	1.333	1905.4	-4.3	245.4	-24.3	
MAY 2	13492.5	14:40: 2.1	2 37 1.24	15 20 32.0	1.007823	1.310	1904.4	-4.1	219.0	-24.0	
MAY 4	13494.5	14:47:55.2	2 44 41.85	15 55 53.5	1.008336	1.285	1903.4	-3.9	192.5	-23.6	
MAY 6	13496.5	14:55:48.3	2 52 24.74	16 30 11.9	1.008834	1.259	1902.5	-3.6	166.1	-23.2	
MAY 8	13498.5	15: 3:41.5	3 0 9.92	17 3 24.5	1.009318	1.232	1901.6	-3.4	139.7	-22.7	
MAY 10	13500.5	15:11:34.6	3 7 57.41	17 35 28.8	1.009785	1.203	1900.7	-3.2	113.2	-22.2	
MAY 12	13502.5	15:19:27.7	3 15 47.17	18 6 22.2	1.010235	1.173	1899.9	-3.0	86.8	-21.8	
MAY 14	13504.5	15:27:20.8	3 23 39.17	18 36 2.3	1.010670	1.141	1899.1	-2.8	60.3	-21.2	
MAY 16	13506.5	15:35:13.9	3 31 33.39	19 4 26.8	1.011090	1.108	1898.3	-2.5	33.9	-20.7	
MAY 18	13508.5	15:43: 7.0	3 39 29.77	19 31 33.4	1.011496	1.074	1897.5	-2.3	7.4	-20.1	
MAY 20	13510.5	15:51: 0.1	3 47 28.30	19 57 20.0	1.011891	1.038	1896.8	-2.1	341.0	-19.5	
MAY 22	13512.5	15:58:53.2	3 55 28.94	20 21 44.6	1.012275	1.001	1896.0	-1.9	314.5	-18.9	
MAY 24	13514.5	16: 6:46.3	4 3 31.66	20 44 45.6	1.012651	0.963	1895.3	-1.6	288.0	-18.2	
MAY 26	13516.5	16:14:39.5	4 11 36.42	21 6 21.2	1.013017	0.923	1894.6	-1.4	261.6	-17.6	
MAY 28	13518.5	16:22:32.6	4 19 43.15	21 26 29.8	1.013374	0.883	1894.0	-1.1	235.1	-16.9	
MAY 30	13520.5	16:30:25.7	4 27 51.78	21 45 9.7	1.013718	0.842	1893.3	-0.9	208.7	-16.1	
JUN 1	13522.5	16:38:18.8	4 36 2.20	22 2 19.1	1.014048	0.800	1892.7	-0.7	182.2	-15.4	
JUN 3	13524.5	16:46:11.9	4 44 14.29	22 17 56.5	1.014359	0.757	1892.1	-0.4	155.7	-14.7	
JUN 5	13526.5	16:54: 5.0	4 52 27.92	22 32 0.4	1.014650	0.714	1891.6	-0.2	129.3	-13.9	
JUN 7	13528.5	17: 1:58.1	5 0 42.91	22 44 29.6	1.014918	0.670	1891.1	0.1	102.8	-13.1	
JUN 9	13530.5	17: 9:51.2	5 8 59.06	22 55 22.8	1.015165	0.625	1890.6	0.3	76.3	-12.3	
JUN 11	13532.5	17:17:44.3	5 17 16.17	23 4 39.2	1.015389	0.580	1890.2	0.5	49.8	-11.5	
JUN 13	13534.5	17:25:37.5	5 25 34.05	23 12 17.9	1.015593	0.533	1889.8	0.8	23.4	-10.6	
JUN 15	13536.5	17:33:30.6	5 33 52.49	23 18 18.2	1.015776	0.486	1889.5	1.0	356.9	-9.8	
JUN 17	13538.5	17:41:23.7	5 42 11.32	23 22 39.7	1.015941	0.438	1889.2	1.3	330.4	-8.9	
JUN 19	13540.5	17:49:16.8	5 50 30.36	23 25 22.1	1.016090	0.390	1888.9	1.5	304.0	-8.0	
JUN 21	13542.5	17:57: 9.9	5 58 49.44	23 26 25.4	1.016225	0.341	1888.7	1.7	277.5	-7.2	
JUN 23	13544.5	18: 5: 3.0	6 7 8.41	23 25 49.7	1.016347	0.292	1888.4	2.0	251.0	-6.3	
JUN 25	13546.5	18:12:56.1	6 15 27.11	23 23 35.3	1.016456	0.242	1888.2	2.2	224.5	-5.4	
JUN 27	13548.5	18:20:49.2	6 23 45.36	23 19 42.3	1.016552	0.192	1888.1	2.4	198.1	-4.5	
JUN 29	13550.5	18:28:42.3	6 32 3.03	23 14 10.9	1.016630	0.142	1887.9	2.7	171.6	-3.6	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 1	13552.5	18:36:35.4	6 40 19.95	23 7 1.6	1.016689	0.093	1887.8	2.9	145.1	-2.7	
JUL 3	13554.5	18:44:28.6	6 48 35.93	22 58 15.1	1.016727	0.043	1887.7	3.1	118.6	-1.8	
JUL 5	13556.5	18:52:21.7	6 56 50.79	22 47 52.4	1.016741	-0.007	1887.7	3.3	92.2	-0.8	
JUL 7	13558.5	19: 0:14.8	7 5 4.31	22 35 54.4	1.016732	-0.057	1887.7	3.5	65.7	0.1	
JUL 9	13560.5	19: 8: 7.9	7 13 16.33	22 22 22.4	1.016698	-0.106	1887.8	3.7	39.2	1.0	
JUL 11	13562.5	19:16: 1.0	7 21 26.65	22 7 17.7	1.016641	-0.156	1887.9	3.9	12.8	1.9	
JUL 13	13564.5	19:23:54.1	7 29 35.13	21 50 41.8	1.016562	-0.206	1888.0	4.1	346.3	2.8	
JUL 15	13566.5	19:31:47.2	7 37 41.64	21 32 36.2	1.016462	-0.255	1888.2	4.3	319.8	3.6	
JUL 17	13568.5	19:39:40.3	7 45 46.08	21 13 2.7	1.016343	-0.305	1888.4	4.5	293.4	4.5	
JUL 19	13570.5	19:47:33.4	7 53 48.36	20 52 3.2	1.016209	-0.354	1888.7	4.7	266.9	5.4	
JUL 21	13572.5	19:55:26.6	8 1 48.41	20 29 39.6	1.016060	-0.403	1889.0	4.9	240.4	6.3	
JUL 23	13574.5	20: 3:19.7	8 9 46.19	20 5 53.9	1.015900	-0.451	1889.3	5.1	214.0	7.1	
JUL 25	13576.5	20:11:12.8	8 17 41.66	19 40 47.7	1.015727	-0.499	1889.6	5.2	187.5	8.0	
JUL 27	13578.5	20:19: 5.9	8 25 34.82	19 14 22.9	1.015541	-0.546	1889.9	5.4	161.1	8.8	
JUL 29	13580.5	20:26:59.0	8 33 25.67	18 46 41.4	1.015337	-0.593	1890.3	5.6	134.6	9.6	
JUL 31	13582.5	20:34:52.1	8 41 14.19	18 17 45.5	1.015115	-0.639	1890.7	5.7	108.1	10.4	
AUG 2	13584.5	20:42:45.2	8 49 0.34	17 47 37.5	1.014873	-0.683	1891.2	5.9	81.7	11.2	
AUG 4	13586.5	20:50:38.3	8 56 44.11	17 16 19.7	1.014609	-0.727	1891.7	6.0	55.2	12.0	
AUG 6	13588.5	20:58:31.4	9 4 25.46	16 43 54.5	1.014324	-0.771	1892.2	6.1	28.8	12.8	
AUG 8	13590.5	21: 6:24.6	9 12 4.40	16 10 24.6	1.014018	-0.813	1892.8	6.3	2.4	13.5	
AUG 10	13592.5	21:14:17.7	9 19 40.95	15 35 52.4	1.013691	-0.855	1893.4	6.4	335.9	14.3	
AUG 12	13594.5	21:22:10.8	9 27 15.15	15 0 20.4	1.013345	-0.895	1894.0	6.5	309.5	15.0	
AUG 14	13596.5	21:30: 3.9	9 34 47.06	14 23 51.3	1.012982	-0.935	1894.7	6.6	283.0	15.7	
AUG 16	13598.5	21:37:57.0	9 42 16.74	13 46 27.6	1.012605	-0.974	1895.4	6.7	256.6	16.4	
AUG 18	13600.5	21:45:50.1	9 49 44.26	13 8 12.0	1.012217	-1.012	1896.1	6.8	230.2	17.0	
AUG 20	13602.5	21:53:43.2	9 57 9.74	12 29 7.0	1.011821	-1.049	1896.9	6.9	203.7	17.7	
AUG 22	13604.5	22: 1:36.3	10 4 33.30	11 49 14.6	1.011417	-1.085	1897.6	6.9	177.3	18.3	
AUG 24	13606.5	22: 9:29.4	10 11 55.09	11 8 37.2	1.011005	-1.120	1898.4	7.0	150.9	18.9	
AUG 26	13608.5	22:17:22.6	10 19 15.26	10 27 17.0	1.010584	-1.153	1899.2	7.1	124.4	19.5	
AUG 28	13610.5	22:25:15.7	10 26 33.93	9 45 16.6	1.010150	-1.184	1900.0	7.1	98.0	20.0	
AUG 30	13612.5	22:33: 8.8	10 33 51.20	9 2 38.4	1.009703	-1.214	1900.9	7.2	71.6	20.6	
SEP 1	13614.5	22:41: 1.9	10 41 7.19	8 19 25.3	1.009242	-1.243	1901.7	7.2	45.2	21.1	
SEP 3	13616.5	22:48:55.0	10 48 21.99	7 35 39.8	1.008765	-1.270	1902.6	7.2	18.8	21.6	
SEP 5	13618.5	22:56:48.1	10 55 35.72	6 51 24.8	1.008273	-1.296	1903.6	7.2	352.3	22.1	
SEP 7	13620.5	23: 4:41.2	11 2 48.52	6 6 43.0	1.007766	-1.320	1904.5	7.2	325.9	22.5	
SEP 9	13622.5	23:12:34.3	11 10 0.51	5 21 37.0	1.007246	-1.343	1905.5	7.2	299.5	22.9	
SEP 11	13624.5	23:20:27.4	11 17 11.82	4 36 9.7	1.006715	-1.365	1906.5	7.2	273.1	23.3	
SEP 13	13626.5	23:28:20.5	11 24 22.61	3 50 23.9	1.006174	-1.385	1907.5	7.2	246.7	23.7	
SEP 15	13628.5	23:36:13.7	11 31 33.01	3 4 22.3	1.005629	-1.404	1908.6	7.2	220.3	24.1	
SEP 17	13630.5	23:44: 6.8	11 38 43.18	2 18 7.4	1.005081	-1.421	1909.6	7.2	193.9	24.4	
SEP 19	13632.5	23:51:59.9	11 45 53.31	1 31 41.8	1.004532	-1.436	1910.6	7.1	167.5	24.7	
SEP 21	13634.5	23:59:53.0	11 53 3.64	0 45 7.5	1.003984	-1.450	1911.7	7.1	141.1	25.0	
SEP 23	13636.5	0: 7:46.1	12 0 14.34	0 -1-32.9	1.003436	-1.462	1912.7	7.0	114.7	25.2	
SEP 25	13638.5	0:15:39.2	12 7 25.60	0-48-16.9	1.002885	-1.473	1913.8	7.0	88.3	25.5	
SEP 27	13640.5	0:23:32.3	12 14 37.57	-1-35 -1.7	1.002332	-1.481	1914.8	6.9	61.9	25.7	
SEP 29	13642.5	0:31:25.4	12 21 50.40	-2-21-44.6	1.001773	-1.487	1915.9	6.8	35.5	25.8	
OCT 1	13644.5	0:39:18.5	12 29 4.25	-3 -8-22.5	1.001209	-1.492	1917.0	6.7	9.1	26.0	
OCT 3	13646.5	0:47:11.7	12 36 19.27	-3-54-52.5	1.000639	-1.495	1918.1	6.6	342.7	26.1	
OCT 5	13648.5	0:55: 4.8	12 43 35.60	-4-41-11.7	1.000062	-1.496	1919.2	6.5	316.3	26.2	
OCT 7	13650.5	1: 2:57.9	12 50 53.38	-5-27-17.1	0.999481	-1.496	1920.3	6.4	289.9	26.2	
OCT 9	13652.5	1:10:51.0	12 58 12.76	-6-13 -5.4	0.998895	-1.493	1921.4	6.3	263.6	26.3	
OCT 11	13654.5	1:18:44.1	13 5 33.85	-6-58-33.6	0.998308	-1.489	1922.6	6.1	237.2	26.3	
OCT 13	13656.5	1:26:37.2	13 12 56.80	-7-43-38.7	0.997724	-1.484	1923.7	6.0	210.8	26.3	
OCT 15	13658.5	1:34:30.3	13 20 21.74	-8-28-17.5	0.997144	-1.477	1924.8	5.9	184.4	26.2	
OCT 17	13660.5	1:42:23.4	13 27 48.85	-9-12-27.4	0.996573	-1.468	1925.9	5.7	158.0	26.1	
OCT 19	13662.5	1:50:16.5	13 35 18.33	-9-56 -5.6	0.996011	-1.457	1927.0	5.6	131.6	26.0	
OCT 21	13664.5	1:58: 9.7	13 42 50.35	-10-39 -9.3	0.995460	-1.445	1928.1	5.4	105.3	25.9	
OCT 23	13666.5	2: 6: 2.8	13 50 25.05	-11-21-35.6	0.994917	-1.431	1929.1	5.2	78.9	25.7	
OCT 25	13668.5	2:13:55.9	13 58 2.55	-12 -3-21.4	0.994382	-1.415	1930.2	5.0	52.5	25.5	
OCT 27	13670.5	2:21:49.0	14 5 42.97	-12-44-23.4	0.993853	-1.397	1931.2	4.9	26.1	25.2	
OCT 29	13672.5	2:29:42.1	14 13 26.41	-13-24-38.3	0.993330	-1.377	1932.2	4.7	359.8	25.0	
OCT 31	13674.5	2:37:35.2	14 21 12.96	-14 -4 -2.8	0.992811	-1.356	1933.2	4.5	333.4	24.7	
NOV 2	13676.5	2:45:28.3	14 29 2.69	-14-42-33.5	0.992296	-1.332	1934.2	4.3	307.0	24.3	
NOV 4	13678.5	2:53:21.4	14 36 55.67	-15-20 -7.1	0.991785	-1.307	1935.2	4.1	280.6	24.0	
NOV 6	13680.5	3: 1:14.5	14 44 51.92	-15-56-40.1	0.991278	-1.281	1936.2	3.9	254.3	23.6	
NOV 8	13682.5	3: 9: 7.6	14 52 51.45	-16-32 -9.1	0.990777	-1.253	1937.2	3.6	227.9	23.1	
NOV 10	13684.5	3:17: 0.8	15 0 54.25	-17 -6-30.8	0.990286	-1.224	1938.1	3.4	201.5	22.7	
NOV 12	13686.5	3:24:53.9	15 9 0.35	-17-39-41.9	0.989808	-1.193	1939.1	3.2	175.2	22.2	
NOV 14	13688.5	3:32:47.0	15 17 9.78	-18-11-39.4	0.989345	-1.161	1940.0	3.0	148.8	21.7	
NOV 16	13690.5	3:40:40.1	15 25 22.57	-18-42-20.5	0.988901	-1.128	1940.8	2.7	122.4	21.1	
NOV 18	13692.5	3:48:33.2	15 33 38.73	-19-11-42.2	0.988475	-1.094	1941.7	2.5	96.1	20.5	
NOV 20	13694.5	3:56:26.3	15 41 58.24	-19-39-41.8	0.988068	-1.057	1942.5	2.2	69.7	19.9	
NOV 22	13696.5	4: 4:19.4	15 50 21.05	-20 -6-16.3	0.987678	-1.020	1943.3	2.0	43.3	19.3	
NOV 24	13698.5	4:12:12.5	15 58 47.09	-20-31-22.6	0.987305	-0.981	1944.0	1.8	17.0	18.6	
NOV 26	13700.5	4:20: 5.6	16 7 16.28	-20-54-58.1	0.986947	-0.941	1944.7	1.5	350.6	17.9	
NOV 28	13702.5	4:27:58.8	16 15 48.49	-21-16-59.8	0.986603	-0.899	1945.4	1.3	324.3	17.2	
NOV 30	13704.5	4:35:51.9	16 24 23.61	-21-37-25.1	0.986272	-0.856	1946.0	1.0	297.9	16.5	
DEC 2	13706.5	4:43:45.0	16 33 1.45	-21-56-11.6	0.985952	-0.812	1946.7	0.7	271.6	15.7	
DEC 4	13708.5	4:51:38.1	16 41 41.80	-22-13-16.9	0.985643	-0.767	1947.3	0.5	245.2	14.9	
DEC 6	13710.5	4:59:31.2	16 50 24.43	-22-28-38.8	0.985347	-0.721	1947.9	0.2	218.8	14.1	
DEC 8	13712.5	5: 7:24.3	16 59 9.08	-22-42-15.3	0.985065	-0.675	1948.4	0.0	192.5	13.2	
DEC 10	13714.5	5:15:17.4	17 7 55.53	-22-54 -4.6	0.984801	-0.628	1948.9	-0.3	166.1	12.4	
DEC 12	13716.5	5:23:10.5	17 16 43.57	-23 -4 -5.3	0.984557	-0.580	1949.4	-0.5	139.8	11.5	
DEC 14	13718.5	5:31: 3.6	17 25 33.01	-23-12-16.3	0.984336	-0.531	1949.9	-0.8	113.4	10.6	
DEC 16	13720.5	5:38:56.8	17 34 23.60	-23-18-36.6	0.984139	-0.482	1950.2	-1.0	87.1	9.7	
DEC 18	13722.5	5:46:49.9	17 43 15.11	-23-23 -5.5	0.983967	-0.432	1950.6	-1.3	60.7	8.8	
DEC 20	13724.5	5:54:43.0	17 52 7.31	-23-25-42.2	0.983818	-0.382	1950.9	-1.5	34.4	7.9	
DEC 22	13726.5	6: 2:36.1	18 0 59.93	-23-26-26.2	0.983693	-0.331	1951.1	-1.8	8.0	6.9	
DEC 24	13728.5	6:10:29.2	18 9 52.73	-23-25-17.3	0.983589	-0.280	1951.3	-2.0	341.7	6.0	
DEC 26	13730.5	6:18:22.3	18 18 45.44	-23-22-15.3	0.983505	-0.228	1951.5	-2.3	315.3	5.0	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JAN 1	13736.5	6:42:1.6	18 45 20.30	-23 -1-54.8	0.983354	-0.069	1951.8	-3.0	236.3	2.1	
JAN 3	13738.5	6:49:54.7	18 54 9.83	-22-51-25.8	0.983333	-0.016	1951.8	-3.2	210.0	1.1	
JAN 5	13740.5	6:57:47.9	19 2 57.80	-22-39 -7.6	0.983327	0.037	1951.9	-3.5	183.6	0.2	
JAN 7	13742.5	7: 5:41.0	19 11 43.97	-22-25 -1.8	0.983340	0.089	1951.8	-3.7	157.3	-0.8	
JAN 9	13744.5	7:13:34.1	19 20 28.14	-22 -9-10.0	0.983373	0.142	1951.8	-3.9	131.0	-1.8	
JAN 11	13746.5	7:21:27.2	19 29 10.12	-21-51-34.3	0.983429	0.194	1951.7	-4.1	104.6	-2.7	
JAN 13	13748.5	7:29:20.3	19 37 49.73	-21-32-16.9	0.983509	0.245	1951.5	-4.3	78.3	-3.7	
JAN 15	13750.5	7:37:13.4	19 46 26.82	-21-11-19.8	0.983615	0.297	1951.3	-4.5	52.0	-4.6	
JAN 17	13752.5	7:45: 6.5	19 55 1.26	-20-48-45.3	0.983745	0.348	1951.0	-4.7	25.6	-5.5	
JAN 19	13754.5	7:52:59.6	20 3 32.93	-20-24-35.9	0.983899	0.398	1950.7	-4.9	359.3	-6.5	
JAN 21	13756.5	8: 0:52.7	20 12 1.74	-19-58-54.0	0.984075	0.449	1950.4	-5.1	332.9	-7.4	
JAN 23	13758.5	8: 8:45.9	20 20 27.60	-19-31-42.1	0.984273	0.498	1950.0	-5.3	306.6	-8.3	
JAN 25	13760.5	8:16:39.0	20 28 50.45	-19 -3 -3.1	0.984490	0.548	1949.6	-5.5	280.3	-9.2	
JAN 27	13762.5	8:24:32.1	20 37 10.21	-18-32-60.0	0.984722	0.596	1949.1	-5.6	253.9	-10.0	
JAN 29	13764.5	8:32:25.2	20 45 26.80	-18 -1-35.8	0.984969	0.645	1948.6	-5.8	227.6	-10.9	
JAN 31	13766.5	8:40:18.3	20 53 40.13	-17-28-53.9	0.985228	0.692	1948.1	-5.9	201.3	-11.7	
FEB 2	13768.5	8:48:11.4	21 1 50.14	-16-54-57.7	0.985498	0.738	1947.6	-6.1	175.0	-12.5	
FEB 4	13770.5	8:56: 4.5	21 9 56.82	-16-19-50.4	0.985782	0.784	1947.0	-6.2	148.6	-13.3	
FEB 6	13772.5	9: 3:57.6	21 18 0.18	-15-43-35.4	0.986082	0.828	1946.4	-6.3	122.3	-14.1	
FEB 8	13774.5	9:11:50.7	21 26 0.26	-15 -6-16.3	0.986399	0.871	1945.8	-6.5	96.0	-14.9	
FEB 10	13776.5	9:19:43.9	21 33 57.12	-14-27-56.4	0.986735	0.912	1945.1	-6.6	69.6	-15.6	
FEB 12	13778.5	9:27:37.0	21 41 50.82	-13-48-38.9	0.987092	0.953	1944.4	-6.7	43.3	-16.3	
FEB 14	13780.5	9:35:30.1	21 49 41.46	-13 -8-27.1	0.987468	0.992	1943.7	-6.8	16.9	-17.0	
FEB 16	13782.5	9:43:23.2	21 57 29.15	-12-27-24.0	0.987865	1.030	1942.9	-6.9	350.6	-17.7	
FEB 18	13784.5	9:51:16.3	22 5 14.02	-11-45-32.7	0.988280	1.067	1942.1	-6.9	324.3	-18.3	
FEB 20	13786.5	9:59: 9.4	22 12 56.18	-11 -2-56.5	0.988712	1.102	1941.2	-7.0	297.9	-19.0	
FEB 22	13788.5	10: 7: 2.5	22 20 35.78	-10-19-38.3	0.989159	1.137	1940.3	-7.1	271.6	-19.6	
FEB 24	13790.5	10:14:55.6	22 28 12.93	-9-35-41.5	0.989618	1.170	1939.4	-7.1	245.3	-20.1	
FEB 26	13792.5	10:22:48.7	22 35 47.74	-8-51 -9.4	0.990087	1.202	1938.5	-7.2	218.9	-20.7	
FEB 28	13794.5	10:30:41.8	22 43 20.30	-8 -6 -5.5	0.990561	1.232	1937.6	-7.2	192.6	-21.2	
MAR 2	13796.5	10:38:35.0	22 50 50.72	-7-20-33.1	0.991040	1.261	1936.7	-7.2	166.2	-21.7	
MAR 4	13798.5	10:46:28.1	22 58 19.13	-6-34-35.7	0.991525	1.288	1935.7	-7.2	139.9	-22.2	
MAR 6	13800.5	10:54:21.2	23 5 45.65	-5-48-16.6	0.992016	1.314	1934.8	-7.2	113.5	-22.7	
MAR 8	13802.5	11: 2:14.3	23 13 10.43	-5 -1-39.0	0.992515	1.337	1933.8	-7.2	87.2	-23.1	
MAR 10	13804.5	11:10: 7.4	23 20 33.62	-4-14-46.2	0.993024	1.359	1932.8	-7.2	60.8	-23.5	
MAR 12	13806.5	11:18: 0.5	23 27 55.39	-3-27-41.1	0.993545	1.380	1931.8	-7.2	34.5	-23.9	
MAR 14	13808.5	11:25:53.6	23 35 15.91	-2-40-26.5	0.994076	1.398	1930.8	-7.2	8.1	-24.2	
MAR 16	13810.5	11:33:46.7	23 42 35.37	-1-53 -5.3	0.994620	1.415	1929.7	-7.2	341.8	-24.6	
MAR 18	13812.5	11:41:39.8	23 49 53.96	-1 -5-40.3	0.995174	1.429	1928.6	-7.1	315.4	-24.9	
MAR 20	13814.5	11:49:33.0	23 57 11.88	0-18-14.0	0.995738	1.443	1927.5	-7.1	289.0	-25.1	
MAR 22	13816.5	11:57:26.1	0 4 29.32	0 29 10.7	0.996310	1.455	1926.4	-7.0	262.7	-25.4	
MAR 24	13818.5	12: 5:19.2	0 11 46.43	1 16 31.0	0.996887	1.465	1925.3	-6.9	236.3	-25.6	
MAR 26	13820.5	12:13:12.3	0 19 3.39	2 3 44.1	0.997465	1.473	1924.2	-6.8	209.9	-25.8	
MAR 28	13822.5	12:21: 5.4	0 26 20.31	2 50 46.8	0.998043	1.480	1923.1	-6.8	183.5	-25.9	
MAR 30	13824.5	12:28:58.5	0 33 37.35	3 37 36.1	0.998616	1.485	1922.0	-6.7	157.2	-26.1	
APR 1	13826.5	12:36:51.6	0 40 54.64	4 24 9.0	0.999185	1.489	1920.9	-6.6	130.8	-26.2	
APR 3	13828.5	12:44:44.7	0 48 12.31	5 10 22.5	0.999749	1.490	1919.8	-6.4	104.4	-26.2	
APR 5	13830.5	12:52:37.8	0 55 30.48	5 56 13.5	1.000311	1.490	1918.7	-6.3	78.0	-26.3	
APR 7	13832.5	13: 0:31.0	1 2 49.29	6 41 39.3	1.000871	1.488	1917.6	-6.2	51.6	-26.3	
APR 9	13834.5	13: 8:24.1	1 10 8.88	7 26 37.1	1.001432	1.484	1916.6	-6.1	25.2	-26.3	
APR 11	13836.5	13:16:17.2	1 17 29.41	8 11 4.2	1.001994	1.478	1915.5	-5.9	358.8	-26.2	
APR 13	13838.5	13:24:10.3	1 24 51.04	8 54 58.2	1.002557	1.470	1914.4	-5.8	332.4	-26.2	
APR 15	13840.5	13:32: 3.4	1 32 13.92	9 38 16.6	1.003122	1.460	1913.3	-5.6	306.0	-26.1	
APR 17	13842.5	13:39:56.5	1 39 38.22	10 20 56.9	1.003688	1.449	1912.3	-5.5	279.6	-25.9	
APR 19	13844.5	13:47:49.6	1 47 4.07	11 2 56.5	1.004254	1.436	1911.2	-5.3	253.2	-25.8	
APR 21	13846.5	13:55:42.7	1 54 31.61	11 44 13.1	1.004817	1.422	1910.1	-5.1	226.8	-25.6	
APR 23	13848.5	14: 3:35.8	2 2 0.95	12 24 43.8	1.005374	1.406	1909.1	-5.0	200.3	-25.3	
APR 25	13850.5	14:11:28.9	2 9 32.16	13 4 25.8	1.005922	1.389	1908.0	-4.8	173.9	-25.1	
APR 27	13852.5	14:19:22.1	2 17 5.35	13 43 16.4	1.006458	1.370	1907.0	-4.6	147.5	-24.8	
APR 29	13854.5	14:27:15.2	2 24 40.57	14 21 12.8	1.006981	1.350	1906.0	-4.4	121.1	-24.5	
MAY 1	13856.5	14:35: 8.3	2 32 17.86	14 58 12.3	1.007489	1.328	1905.0	-4.2	94.6	-24.2	
MAY 3	13858.5	14:43:1.4	2 39 57.24	15 34 12.0	1.007984	1.304	1904.1	-4.0	68.2	-23.8	
MAY 5	13860.5	14:50:54.5	2 47 38.74	16 9 9.5	1.008468	1.279	1903.2	-3.8	41.8	-23.4	
MAY 7	13862.5	14:58:47.6	2 55 22.39	16 43 2.1	1.008941	1.252	1902.3	-3.6	15.3	-23.0	
MAY 9	13864.5	15: 6:40.7	3 3 8.24	17 15 47.5	1.009406	1.224	1901.4	-3.4	348.9	-22.5	
MAY 11	13866.5	15:14:33.8	3 10 56.31	17 47 23.5	1.009862	1.194	1900.6	-3.1	322.5	-22.1	
MAY 13	13868.5	15:22:26.9	3 18 46.65	18 17 47.8	1.010312	1.163	1899.7	-2.9	296.0	-21.6	
MAY 15	13870.5	15:30:20.1	3 26 39.28	18 46 58.4	1.010754	1.130	1898.9	-2.7	269.6	-21.0	
MAY 17	13872.5	15:38:13.2	3 34 34.21	19 14 53.1	1.011190	1.096	1898.1	-2.5	243.1	-20.5	
MAY 19	13874.5	15:46: 6.3	3 42 31.44	19 41 29.9	1.011616	1.062	1897.3	-2.2	216.6	-19.9	
MAY 21	13876.5	15:53:59.4	3 50 30.92	20 6 46.7	1.012030	1.026	1896.5	-2.0	190.2	-19.3	
MAY 23	13878.5	16: 1:52.5	3 58 32.62	20 30 41.1	1.012430	0.989	1895.7	-1.8	163.7	-18.6	
MAY 25	13880.5	16: 9:45.6	4 6 36.48	20 53 11.2	1.012811	0.951	1895.0	-1.5	137.3	-18.0	
MAY 27	13882.5	16:17:38.7	4 14 42.39	21 14 14.9	1.013173	0.912	1894.4	-1.3	110.8	-17.3	
MAY 29	13884.5	16:25:31.8	4 22 50.21	21 33 50.5	1.013513	0.872	1893.7	-1.0	84.3	-16.6	
MAY 31	13886.5	16:33:24.9	4 30 59.80	21 51 56.3	1.013833	0.831	1893.1	-0.8	57.9	-15.9	
JUN 2	13888.5	16:41:18.1	4 39 11.00	22 8 30.4	1.014134	0.789	1892.6	-0.6	31.4	-15.1	
JUN 4	13890.5	16:49:11.2	4 47 23.66	22 23 31.7	1.014416	0.746	1892.0	-0.3	4.9	-14.4	
JUN 6	13892.5	16:57: 4.3	4 55 37.65	22 36 58.7	1.014681	0.702	1891.5	-0.1	338.5	-13.6	
JUN 8	13894.5	17: 4:57.4	5 3 52.83	22 48 50.4	1.014932	0.657	1891.1	0.2	312.0	-12.8	
JUN 10	13896.5	17:12:50.5	5 12 9.05	22 59 6.0	1.015169	0.612	1890.6	0.4	285.5	-12.0	
JUN 12	13898.5	17:20:43.6	5 20 26.19	23 7 44.7	1.015393	0.565	1890.2	0.6	259.1	-11.1	
JUN 14	13900.5	17:28:36.7	5 28 44.09	23 14 45.8	1.015606	0.518	1889.8	0.9	232.6	-10.3	
JUN 16	13902.5	17:36:29.8	5 37 2.60	23 20 8.9	1.015806	0.471	1889.4	1.1	206.1	-9.4	
JUN 18	13904.5	17:44:22.9	5 45 21.56	23 23 53.3	1.015991	0.423	1889.1	1.4	179.6	-8.6	
JUN 20	13906.5	17:52:16.1	5 53 40.81	23 25 58.5	1.016158	0.374	1888.8	1.6	153.2	-7.7	
JUN 22	13908.5	18: 0: 9.2	6 2 0.17	23 26 24.4	1.016305	0.326	1888.5	1.8	126.7	-6.8	
JUN 24	13910.5	18: 8: 2.3	6 10 19.43	23 25 10.9	1.016429	0.277	1888.3	2.1	100.2	-5.9	
JUN 26	13912.5	18:15:55.4	6 18 38.37	23 22 18.3	1.016529	0.228	1888.1	2.3	73.7	-5.0	
JUN 28	13914.5	18:23:48.5	6 26 56.74	23 17 47.0	1.016605	0.179	1888.0	2.5	47.3	-4.1	

Date (0 DT)	JD (2440000+)	GST (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	RV (km/s)	Diam (")	Hel. Lat	Hel. Long	P.A. Axis
JUL 2	13918.5	18:39:34.7	6 43 30.94	23 3 50.3	1.016688	0.080	1887.8	3.0	354.3	-2.3	
JUL 4	13920.5	18:47:27.8	6 51 46.38	22 54 26.4	1.016697	0.030	1887.8	3.2	327.9	-1.4	
JUL 6	13922.5	18:55:20.9	7 0 0.51	22 43 26.9	1.016688	-0.021	1887.8	3.4	301.4	-0.5	
JUL 8	13924.5	19: 3:14.0	7 8 13.17	22 30 52.9	1.016662	-0.071	1887.9	3.6	274.9	0.4	
JUL 10	13926.5	19:11: 7.2	7 16 24.23	22 16 45.7	1.016620	-0.121	1887.9	3.8	248.4	1.3	
JUL 12	13928.5	19:19: 0.3	7 24 33.58	22 1 6.8	1.016566	-0.171	1888.0	4.0	222.0	2.2	
JUL 14	13930.5	19:26:53.4	7 32 41.11	21 43 57.4	1.016498	-0.222	1888.2	4.2	195.5	3.1	
JUL 16	13932.5	19:34:46.5	7 40 46.74	21 25 18.9	1.016416	-0.271	1888.3	4.4	169.0	4.0	
JUL 18	13934.5	19:42:39.6	7 48 50.40	21 5 12.8	1.016318	-0.320	1888.5	4.6	142.6	4.9	
JUL 20	13936.5	19:50:32.7	7 56 52.02	20 43 40.8	1.016201	-0.369	1888.7	4.8	116.1	5.7	
JUL 22	13938.5	19:58:25.8	8 4 51.50	20 20 44.7	1.016063	-0.417	1889.0	5.0	89.7	6.6	
JUL 24	13940.5	20: 6:18.9	8 12 48.75	19 56 26.5	1.015901	-0.465	1889.3	5.1	63.2	7.5	
JUL 26	13942.5	20:14:12.0	8 20 43.66	19 30 48.6	1.015717	-0.512	1889.6	5.3	36.7	8.3	
JUL 28	13944.5	20:22: 5.2	8 28 36.16	19 3 52.9	1.015509	-0.558	1890.0	5.5	10.3	9.1	
JUL 30	13946.5	20:29:58.3	8 36 26.20	18 35 41.9	1.015280	-0.604	1890.4	5.6	343.8	9.9	
AUG 1	13948.5	20:37:51.4	8 44 13.76	18 6 17.8	1.015029	-0.650	1890.9	5.8	317.4	10.7	
AUG 3	13950.5	20:45:44.5	8 51 58.82	17 35 43.0	1.014760	-0.695	1891.4	5.9	290.9	11.5	
AUG 5	13952.5	20:53:37.6	8 59 41.40	17 3 60.0	1.014475	-0.739	1891.9	6.0	264.5	12.3	
AUG 7	13954.5	21: 1:30.7	9 7 21.52	16 31 11.1	1.014176	-0.783	1892.5	6.2	238.0	13.1	
AUG 9	13956.5	21: 9:23.8	9 14 59.23	15 57 18.8	1.013865	-0.825	1893.1	6.3	211.6	13.8	
AUG 11	13958.5	21:17:16.9	9 22 34.59	15 22 25.4	1.013544	-0.867	1893.7	6.4	185.1	14.5	
AUG 13	13960.5	21:25:10.0	9 30 7.69	14 46 33.0	1.013214	-0.908	1894.3	6.5	158.7	15.2	
AUG 15	13962.5	21:33: 3.2	9 37 38.65	14 9 43.6	1.012872	-0.948	1894.9	6.6	132.3	15.9	
AUG 17	13964.5	21:40:56.3	9 45 7.56	13 31 59.8	1.012516	-0.986	1895.6	6.7	105.8	16.6	
AUG 19	13966.5	21:48:49.4	9 52 34.48	12 53 24.0	1.012145	-1.024	1896.3	6.8	79.4	17.3	
AUG 21	13968.5	21:56:42.5	9 59 59.49	12 13 58.8	1.011757	-1.060	1897.0	6.9	53.0	17.9	
AUG 23	13970.5	22: 4:35.6	10 7 22.65	11 33 47.0	1.011350	-1.094	1897.8	7.0	26.5	18.5	
AUG 25	13972.5	22:12:28.7	10 14 44.03	10 52 51.2	1.010925	-1.128	1898.6	7.0	0.1	19.1	
AUG 27	13974.5	22:20:21.8	10 22 3.74	10 11 14.1	1.010482	-1.160	1899.4	7.1	333.7	19.7	
AUG 29	13976.5	22:28:14.9	10 29 21.87	9 28 58.4	1.010023	-1.191	1900.3	7.1	307.3	20.2	
AUG 31	13978.5	22:36: 8.0	10 36 38.55	8 46 6.8	1.009550	-1.221	1901.1	7.2	280.8	20.8	
SEP 2	13980.5	22:44: 1.1	10 43 53.89	8 2 42.0	1.009064	-1.249	1902.1	7.2	254.4	21.3	
SEP 4	13982.5	22:51:54.3	10 51 8.01	7 18 46.7	1.008568	-1.277	1903.0	7.2	228.0	21.8	
SEP 6	13984.5	22:59:47.4	10 58 21.07	6 34 23.4	1.008066	-1.303	1903.9	7.2	201.6	22.2	
SEP 8	13986.5	23: 7:40.5	11 5 33.21	5 49 34.7	1.007560	-1.327	1904.9	7.2	175.2	22.7	
SEP 10	13988.5	23:15:33.6	11 12 44.63	5 4 22.7	1.007051	-1.350	1905.9	7.2	148.8	23.1	
SEP 12	13990.5	23:23:26.7	11 19 55.54	4 18 49.7	1.006539	-1.372	1906.8	7.2	122.4	23.5	
SEP 14	13992.5	23:31:19.8	11 27 6.11	3 32 58.1	1.006022	-1.391	1907.8	7.2	95.9	23.8	
SEP 16	13994.5	23:39:12.9	11 34 16.49	2 46 50.4	1.005499	-1.409	1908.8	7.2	69.5	24.2	
SEP 18	13996.5	23:47: 6.0	11 41 26.82	2 0 29.5	1.004967	-1.425	1909.8	7.2	43.1	24.5	
SEP 20	13998.5	23:54:59.1	11 48 37.26	1 13 58.2	1.004425	-1.440	1910.9	7.1	16.7	24.8	
SEP 22	14000.5	0: 2:52.3	11 55 47.93	0 27 19.3	1.003874	-1.452	1911.9	7.1	350.3	25.1	
SEP 24	14002.5	0:10:45.4	12 2 59.00	0-19-24.4	1.003313	-1.463	1913.0	7.0	323.9	25.3	
SEP 26	14004.5	0:18:38.5	12 10 10.60	-1 -6-10.0	1.002743	-1.473	1914.1	6.9	297.5	25.5	
SEP 28	14006.5	0:26:31.6	12 17 22.89	-1-52-54.5	1.002165	-1.480	1915.2	6.9	271.1	25.7	
SEP 30	14008.5	0:34:24.7	12 24 36.01	-2-39-35.1	1.001582	-1.486	1916.3	6.8	244.8	25.9	
OCT 2	14010.5	0:42:17.8	12 31 50.11	-3-26 -8.9	1.000997	-1.491	1917.4	6.7	218.4	26.0	
OCT 4	14012.5	0:50:10.9	12 39 5.33	-4-12-32.9	1.000411	-1.494	1918.5	6.6	192.0	26.1	
OCT 6	14014.5	0:58: 4.0	12 46 21.85	-4-58-44.4	0.999830	-1.495	1919.6	6.5	165.6	26.2	
OCT 8	14016.5	1: 5:57.1	12 53 39.87	-5-44-40.9	0.999254	-1.494	1920.7	6.4	139.2	26.3	
OCT 10	14018.5	1:13:50.3	13 0 59.60	-6-30-19.8	0.998685	-1.492	1921.8	6.2	112.8	26.3	
OCT 12	14020.5	1:21:43.4	13 8 21.23	-7-15-38.6	0.998122	-1.488	1922.9	6.1	86.4	26.3	
OCT 14	14022.5	1:29:36.5	13 15 44.90	-8 0-34.2	0.997563	-1.482	1924.0	6.0	60.0	26.2	
OCT 16	14024.5	1:37:29.6	13 23 10.78	-8-45 -3.6	0.997007	-1.474	1925.1	5.8	33.7	26.2	
OCT 18	14026.5	1:45:22.7	13 30 38.98	-9-29 -3.6	0.996451	-1.464	1926.1	5.7	7.3	26.1	
OCT 20	14028.5	1:53:15.8	13 38 9.64	-10-12-31.0	0.995897	-1.452	1927.2	5.5	340.9	25.9	
OCT 22	14030.5	2: 1: 8.9	13 45 42.88	-10-55-22.6	0.995342	-1.439	1928.3	5.3	314.5	25.8	
OCT 24	14032.5	2: 9: 2.0	13 53 18.81	-11-37-35.1	0.994788	-1.423	1929.4	5.2	288.1	25.6	
OCT 26	14034.5	2:16:55.1	14 0 57.53	-12-19 -5.1	0.994235	-1.406	1930.4	5.0	261.8	25.4	
OCT 28	14036.5	2:24:48.2	14 8 39.11	-12-59-49.5	0.993685	-1.388	1931.5	4.8	235.4	25.1	
OCT 30	14038.5	2:32:41.4	14 16 23.63	-13-39-44.7	0.993140	-1.367	1932.6	4.6	209.0	24.8	
NOV 1	14040.5	2:40:34.5	14 24 11.16	-14-18-47.6	0.992603	-1.346	1933.6	4.4	182.6	24.5	
NOV 3	14042.5	2:48:27.6	14 32 1.79	-14-56-54.9	0.992078	-1.323	1934.6	4.2	156.3	24.2	
NOV 5	14044.5	2:56:20.7	14 39 55.61	-15-34 -3.6	0.991567	-1.298	1935.6	4.0	129.9	23.8	
NOV 7	14046.5	3: 4:13.8	14 47 52.74	-16-10-10.8	0.991072	-1.272	1936.6	3.8	103.5	23.4	
NOV 9	14048.5	3:12: 6.9	14 55 53.26	-16-45-13.7	0.990593	-1.244	1937.5	3.6	77.2	23.0	
NOV 11	14050.5	3:20: 0.0	15 3 57.21	-17-19 -8.9	0.990129	-1.214	1938.4	3.3	50.8	22.5	
NOV 13	14052.5	3:27:53.1	15 12 4.61	-17-51-53.3	0.989678	-1.183	1939.3	3.1	24.4	22.0	
NOV 15	14054.5	3:35:46.2	15 20 15.47	-18-23-23.5	0.989239	-1.151	1940.2	2.9	358.1	21.5	
NOV 17	14056.5	3:43:39.4	15 28 29.77	-18-53-36.4	0.988812	-1.116	1941.0	2.6	331.7	20.9	
NOV 19	14058.5	3:51:32.5	15 36 47.47	-19-22-28.7	0.988394	-1.080	1941.9	2.4	305.3	20.3	
NOV 21	14060.5	3:59:25.6	15 45 8.52	-19-49-57.3	0.987985	-1.043	1942.7	2.2	279.0	19.7	
NOV 23	14062.5	4: 7:18.7	15 53 32.82	-20-15-59.3	0.987586	-1.005	1943.4	1.9	252.6	19.0	
NOV 25	14064.5	4:15:11.8	16 2 0.23	-20-40-31.6	0.987196	-0.965	1944.2	1.7	226.2	18.4	
NOV 27	14066.5	4:23: 4.9	16 10 30.61	-21 -3-31.5	0.986819	-0.924	1944.9	1.4	199.9	17.7	
NOV 29	14068.5	4:30:58.0	16 19 3.81	-21-24-56.1	0.986456	-0.882	1945.7	1.2	173.5	16.9	
DEC 1	14070.5	4:38:51.1	16 27 39.69	-21-44-43.2	0.986110	-0.840	1946.3	0.9	147.2	16.2	
DEC 3	14072.5	4:46:44.2	16 36 18.12	-22 -2-50.4	0.985784	-0.796	1947.0	0.7	120.8	15.4	
DEC 5	14074.5	4:54:37.4	16 44 58.97	-22-19-15.8	0.985481	-0.751	1947.6	0.4	94.5	14.6	
DEC 7	14076.5	5: 2:30.5	16 53 42.06	-22-33-57.6	0.985202	-0.706	1948.1	0.1	68.1	13.8	
DEC 9	14078.5	5:10:23.6	17 2 27.23	-22-46-53.9	0.984945	-0.659	1948.6	-0.1	41.7	12.9	
DEC 11	14080.5	5:18:16.7	17 11 14.27	-22-58 -3.0	0.984711	-0.612	1949.1	-0.4	15.4	12.1	
DEC 13	14082.5	5:26: 9.8	17 20 2.95	-23 -7-23.2	0.984496	-0.564	1949.5	-0.6	349.0	11.2	
DEC 15	14084.5	5:34: 2.9	17 28 53.05	-23-14-53.3	0.984300	-0.515	1949.9	-0.9	322.7	10.3	
DEC 17	14086.5	5:41:56.0	17 37 44.32	-23-20-32.0	0.984121	-0.465	1950.3	-1.1	296.3	9.4	
DEC 19	14088.5	5:49:49.1	17 46 36.47	-23-24-18.6	0.983957	-0.414	1950.6	-1.4	270.0	8.4	
DEC 21	14090.5	5:57:42.2	17 55 29.22	-23-26-12.5	0.983808	-0.363	1950.9	-1.6	243.6	7.5	
DEC 23	14092.5	6: 5:35.3	18 4 22.23	-23-26-13.3	0.983674	-0.311	1951.2	-1.9	217.3	6.6	
DEC 25	14094.5	6:13:28.5	18 13 15.20	-23-24-21.0	0.983554	-0.259	1951.4	-2.1	191.0	5.6	
DEC 27	14096.5	6:21:21.6	18 22 7.80	-23-20-35.7	0.983452	-0.207	1951.6	-2.4	164.6		

SECTION 2

**GEOCENTRIC
EPHEMERIS
FOR THE MOON

1995-2006**

TWELVE YEAR PLANETARY EPHEMERIS: 1995 - 2006

SECTION 2: Geocentric Ephemeris for the Moon

<u>Column</u>	<u>Heading</u>	<u>Definition/Description</u>
1	Date (0 DT)	Calendar Date (Gregorian). All ephemeris positions are for 00:00:00 DT (Terrestrial Dynamical Time).
2	RA (h m s)	Apparent Right Ascension of Moon for the mean equinox of date (hours, minutes, seconds).
3	Dec (d ' ")	Apparent Declination of Moon for the mean equinox of date (degrees, arc-minutes, arc-seconds).
4	Dist (1000*km)	Distance of the Moon in units of 10^3 kilometers.
5	H.P. (")	Equatorial Horizontal Parallax of the Moon (arc-seconds).
6	Diam (")	Apparent Angular Diameter of the Moon (arc-seconds).
7	<u>Libration</u> 1	Lunar Libration (optical + physical) in Longitude (degrees).
8	<u>Libration</u> b	Lunar Libration (optical + physical) in Latitude (degrees).
9	<u>Libration</u> c	Lunar Libration (optical + physical) in Position Angle (degrees).
10	Sun Colng	Sun's Selenographic Colongitude or lunar longitude of morning terminator (degrees).
11	P.A. Limb	Position Angle of the midpoint of the Moon's bright limb, measured eastwards (counter- clockwise) from the celestial north point of the lunar disk (degrees).
12	Age (day)	Age of the Moon, measured from the instant of New Moon (days).
13	Phase	Fractional illuminated area (and diameter) of the apparent disk of the Moon.
14	Solar Elong	Solar Elongation of the Moon. Defined as the angular position of the Moon with respect to the Sun (degrees). 'E' is east (evening sky) and 'W' is west (morning sky).

Date (0 DT)	RA [Mean]			Dec	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					(d	'	"					
JAN 1	18	15	53.4	-19-27-13.6	361.4	3640.3	1984.0	2.0	-5.1	359.3	261.5	120.1	29.0	0.004	7.5W
JAN 2	19	17	58.8	-17-33-30.9	364.0	3614.2	1969.7	3.8	-6.0	352.9	273.7	230.9	0.5	0.006	8.8E
JAN 3	20	17	17.6	-14-33-37.7	368.1	3573.9	1947.8	5.2	-6.5	347.2	285.9	244.2	1.5	0.035	21.7E
JAN 4	21	13	18.3	-10-46-33.5	373.4	3523.9	1920.5	6.3	-6.6	342.5	298.1	245.3	2.5	0.089	34.6E
JAN 5	22	6	8.8	-6-31-44.6	379.2	3469.1	1890.7	6.9	-6.3	338.9	310.3	245.0	3.5	0.161	47.2E
JAN 6	22	56	21.8	-2 -6 -9.1	385.3	3414.6	1861.0	7.1	-5.6	336.6	322.5	244.9	4.5	0.247	59.4E
JAN 7	23	44	41.7	2 16 38.8	391.0	3364.4	1833.6	6.8	-4.7	335.4	334.6	245.3	5.5	0.340	71.2E
JAN 8	0	31	55.1	6 26 7.8	396.1	3321.6	1810.3	6.1	-3.5	335.4	346.8	246.4	6.5	0.437	82.6E
JAN 9	1	18	45.5	10 13 56.7	400.2	3287.9	1791.9	5.0	-2.3	336.5	359.0	248.1	7.5	0.534	93.8E
JAN 10	2	5	50.2	13 33 0.2	403.1	3264.2	1779.0	3.8	-0.9	338.6	11.1	250.4	8.5	0.628	104.7E
JAN 11	2	53	37.4	16 16 49.8	404.7	3250.7	1771.6	2.4	0.4	341.7	23.3	253.1	9.5	0.716	115.5E
JAN 12	3	42	24.2	18 19 17.4	405.2	3246.9	1769.6	0.9	1.8	345.5	35.4	256.0	10.5	0.797	126.2E
JAN 13	4	32	14.3	19 34 44.6	404.6	3251.8	1772.2	-0.4	3.0	350.1	47.5	259.0	11.5	0.866	137.0E
JAN 14	5	22	57.9	19 58 35.4	403.1	3264.1	1778.9	-1.7	4.2	355.1	59.7	261.3	12.5	0.924	147.8E
JAN 15	6	14	14.3	19 28 2.2	400.8	3282.3	1788.9	-2.8	5.2	0.5	71.8	261.3	13.5	0.966	158.7E
JAN 16	7	5	37.6	18 2 49.3	398.1	3305.1	1801.3	-3.7	5.9	5.8	83.9	251.9	14.5	0.991	169.3E
JAN 17	7	56	44.2	15 45 38.0	395.0	3330.8	1815.3	-4.4	6.4	10.9	96.1	171.9	15.5	0.998	174.8W
JAN 18	8	47	20.2	12 42 2.6	391.7	3358.4	1830.3	-4.9	6.6	15.4	108.2	125.6	16.5	0.985	165.7W
JAN 19	9	37	24.6	9 0 4.8	388.4	3387.0	1845.9	-5.1	6.4	19.3	120.3	119.2	17.5	0.951	154.3W
JAN 20	10	27	10.9	4 49 38.1	385.2	3415.9	1861.7	-5.2	5.9	22.2	132.5	117.4	18.5	0.897	142.5W
JAN 21	11	17	5.0	0 21 57.9	381.9	3445.0	1877.5	-5.1	5.1	24.0	144.6	116.4	19.5	0.825	130.4W
JAN 22	12	7	41.6	-4-10-33.8	378.7	3474.0	1893.4	-4.8	4.0	24.7	156.7	115.1	20.5	0.736	118.0W
JAN 23	12	59	39.6	-8-34-28.9	375.6	3502.7	1909.0	-4.4	2.7	24.0	168.9	113.2	21.5	0.634	105.5W
JAN 24	13	53	35.8	-12-35 -8.2	372.7	3530.3	1924.0	-3.8	1.1	22.0	181.0	110.5	22.5	0.525	92.7W
JAN 25	14	49	55.5	-15-56-51.8	370.0	3555.5	1937.8	-3.0	-0.5	18.6	193.2	107.1	23.5	0.412	79.7W
JAN 26	15	48	42.0	-18-23-54.3	367.9	3576.5	1949.2	-2.1	-2.1	13.9	205.4	103.1	24.5	0.302	66.5W
JAN 27	16	49	26.4	-19-42-29.4	366.4	3590.7	1956.9	-0.9	-3.5	8.2	217.5	99.0	25.5	0.201	53.2W
JAN 28	17	51	7.5	-19-43-49.3	365.9	3595.8	1959.7	0.4	-4.8	1.9	229.7	95.3	26.5	0.116	39.8W
JAN 29	18	52	25.7	-18-26-48.9	366.5	3589.7	1956.4	1.8	-5.8	355.5	241.9	93.7	27.5	0.053	26.5W
JAN 30	19	52	6.2	-15-58-56.6	368.4	3571.5	1946.5	3.2	-6.4	349.5	254.1	99.9	28.5	0.014	13.5W
JAN 31	20	49	20.5	-12-34-31.4	371.5	3541.9	1930.3	4.4	-6.5	344.4	266.3	171.9	0.0	0.002	5.0W
FEB 1	21	43	52.8	-8-31-23.5	375.6	3503.0	1909.2	5.3	-6.3	340.3	278.5	231.6	1.0	0.016	14.5E
FEB 2	22	35	55.2	-4 -7-36.3	380.4	3458.2	1884.7	5.8	-5.7	337.4	290.7	239.4	2.0	0.054	26.7E
FEB 3	23	25	56.9	0 20 43.5	385.7	3411.2	1859.1	5.9	-4.8	335.7	302.9	242.2	3.0	0.111	38.6E
FEB 4	0	14	35.0	4 40 18.7	390.9	3365.8	1834.4	5.6	-3.7	335.3	315.1	244.2	4.0	0.183	50.6E
FEB 5	1	2	27.3	8 40 36.6	395.6	3325.5	1812.4	5.0	-2.4	336.0	327.2	246.5	5.0	0.266	62.0E
FEB 6	1	50	8.6	12 13 15.2	399.6	3292.7	1794.6	4.0	-1.1	337.8	339.4	249.1	6.0	0.357	73.2E
FEB 7	2	38	7.4	15 11 23.4	402.4	3269.3	1781.8	2.7	0.3	340.6	351.6	252.2	7.0	0.450	84.2E
FEB 8	3	26	44.2	17 29 9.9	404.1	3256.1	1774.6	1.4	1.6	344.2	3.8	255.6	8.0	0.545	95.0E
FEB 9	4	16	9.3	19 1 28.5	404.4	3253.5	1773.2	-0.1	2.9	348.6	15.9	259.3	9.0	0.637	105.8E
FEB 10	5	6	22.7	19 44 3.0	403.4	3261.0	1777.3	-1.4	4.1	353.5	28.1	263.1	10.0	0.725	116.6E
FEB 11	5	57	14.3	19 33 49.8	401.4	3277.8	1786.4	-2.6	5.1	358.7	40.2	266.8	11.0	0.805	127.5E
FEB 12	6	48	27.8	18 29 30.3	398.4	3302.3	1799.8	-3.6	5.8	4.1	52.4	269.7	12.0	0.875	138.5E
FEB 13	7	39	45.5	16 32 3.0	394.8	3332.7	1816.3	-4.3	6.4	9.3	64.5	271.3	13.0	0.932	149.8E
FEB 14	8	30	54.0	13 45 6.5	390.8	3366.8	1834.9	-4.8	6.6	14.0	76.6	269.2	14.0	0.973	161.2E
FEB 15	9	21	48.4	10 15 6.5	386.7	3402.1	1854.1	-5.0	6.5	18.2	88.8	249.7	15.0	0.995	172.1E
FEB 16	10	12	34.9	6 11 8.4	382.9	3436.3	1872.8	-4.9	6.0	21.5	100.9	148.0	16.0	0.996	172.5W
FEB 17	11	3	30.4	1 44 38.8	379.4	3467.6	1889.8	-4.5	5.2	23.7	113.0	124.4	17.0	0.973	161.1W
FEB 18	11	55	0.0	-2-50-59.7	376.5	3494.5	1904.5	-4.1	4.1	24.6	125.2	118.6	18.0	0.928	148.7W
FEB 19	12	47	33.0	-7-20-58.3	374.2	3516.2	1916.3	-3.4	2.7	24.3	137.3	115.1	19.0	0.860	136.0W
FEB 20	13	41	37.0	-11-29-34.9	372.4	3532.8	1925.4	-2.7	1.2	22.6	149.5	111.6	20.0	0.774	123.2W
FEB 21	14	37	30.9	-15 0-59.5	371.2	3544.4	1931.7	-2.0	-0.4	19.4	161.6	107.8	21.0	0.674	110.2W
FEB 22	15	35	16.6	-17-40-20.0	370.5	3551.4	1935.5	-1.1	-2.0	15.0	173.8	103.4	22.0	0.563	97.1W
FEB 23	16	34	32.2	-19-15-17.1	370.2	3554.1	1937.0	-0.2	-3.5	9.6	185.9	98.6	23.0	0.449	84.0W
FEB 24	17	34	32.1	-19-37-59.8	370.4	3552.1	1935.9	0.7	-4.7	3.6	198.1	93.8	24.0	0.338	71.0W
FEB 25	18	34	16.7	-18-46-42.2	371.1	3545.2	1932.1	1.7	-5.7	357.4	210.3	89.4	25.0	0.235	57.9W
FEB 26	19	32	47.9	-16-46-16.5	372.4	3532.5	1925.2	2.7	-6.4	351.4	222.5	85.9	26.0	0.146	44.9W
FEB 27	20	29	25.0	-13-47-17.8	374.4	3513.7	1914.9	3.6	-6.6	346.0	234.7	84.1	27.0	0.076	32.0W
FEB 28	21	23	51.2	-10 -4 -7.4	377.1	3488.5	1901.3	4.3	-6.4	341.6	246.9	86.2	28.0	0.029	19.4W
MAR 1	22	16	11.7	-5-52-39.3	380.5	3457.8	1884.5	4.8	-5.9	338.3	259.1	105.4	29.0	0.004	7.6W
MAR 2	23	6	47.3	-1-28-32.8	384.4	3422.9	1865.5	5.0	-5.1	336.2	271.3	215.4	0.5	0.004	7.4E
MAR 3	23	56	6.7	2 53 57.6	388.6	3386.0	1845.3	4.9	-4.0	335.3	283.5	237.4	1.5	0.026	18.6E
MAR 4	0	44	40.6	7 2 35.0	392.8	3349.4	1825.4	4.5	-2.7	335.6	295.7	243.5	2.5	0.068	30.1E
MAR 5	1	32	57.4	10 47 5.9	396.8	3316.0	1807.2	3.7	-1.3	337.0	307.9	247.4	3.5	0.126	41.5E
MAR 6	2	21	20.6	13 59 10.7	400.1	3288.0	1791.9	2.7	0.1	339.5	320.1	251.1	4.5	0.198	52.7E
MAR 7	3	10	7.1	16 32 7.3	402.6	3267.5	17								

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong		
	(h m s)							l	b	c							
APR 1	1	16	40.1	9	30	23.5	396.3	2319.5	1809.2	3.8	-1.7	336.4	276.7	240.9	0.9	0.009	10.6E
APR 2	2	5	4.3	12	52	54.0	399.4	3294.1	1795.3	2.9	-0.3	338.6	289.0	249.7	1.9	0.036	21.8E
APR 3	2	53	53.8	15	38	56.0	402.0	3272.8	1783.7	1.8	1.2	341.7	301.2	254.6	2.9	0.081	32.9E
APR 4	3	43	13.4	17	42	8.8	403.9	3257.5	1775.3	0.5	2.5	345.6	313.4	259.1	3.9	0.140	43.9E
APR 5	4	32	59.7	18	57	54.2	404.9	3249.5	1771.0	-0.9	3.8	350.2	325.6	263.6	4.9	0.212	54.8E
APR 6	5	23	3.3	19	23	20.6	404.8	3250.3	1771.4	-2.2	4.9	355.2	337.8	268.0	5.9	0.295	65.6E
APR 7	6	13	12.2	18	57	21.6	403.5	3260.7	1777.1	-3.5	5.8	0.4	350.0	272.4	6.9	0.384	76.5E
APR 8	7	3	16.1	17	40	31.0	401.0	3281.2	1788.3	-4.7	6.4	5.7	2.2	276.5	7.9	0.479	87.4E
APR 9	7	53	10.5	15	34	54.3	397.3	3311.9	1805.0	-5.7	6.8	10.6	14.4	280.1	8.9	0.576	98.6E
APR 10	8	42	59.3	12	44	5.9	392.5	3351.7	1826.7	-6.4	6.8	15.2	26.6	283.2	9.9	0.672	110.0E
APR 11	9	32	55.6	9	13	15.9	387.1	3399.0	1852.4	-6.7	6.6	19.1	38.8	285.5	10.9	0.764	121.8E
APR 12	10	23	21.8	5	9	31.6	381.2	3450.9	1880.8	-6.7	5.9	22.1	50.9	286.9	11.9	0.848	133.9E
APR 13	11	14	46.8	0	42	32.3	375.5	3503.9	1909.6	-6.2	5.0	24.0	63.1	287.2	12.9	0.917	146.5E
APR 14	12	7	43.5	-3	-54	-54.6	370.3	3553.3	1936.5	-5.4	3.7	24.7	75.3	285.8	13.9	0.969	159.6E
APR 15	13	2	42.6	-8	-26	-36.8	366.0	3594.4	1958.9	-4.3	2.1	24.0	87.4	279.3	14.9	0.996	172.9E
APR 16	14	0	4.3	-12	-33	-29.4	363.1	3623.0	1974.5	-2.9	0.4	21.7	99.6	112.7	15.9	0.997	173.2W
APR 17	14	59	47.0	-15	-55	-24.9	361.8	3636.5	1981.9	-1.3	-1.3	17.8	111.8	103.5	16.9	0.968	159.4W
APR 18	16	1	18.7	-18	-14	-23.4	362.0	3634.1	1980.6	0.3	-3.0	12.7	123.9	97.9	17.9	0.912	145.5W
APR 19	17	3	36.2	-19	-18	-16.4	363.7	3617.5	1971.5	1.9	-4.5	6.7	136.1	92.5	18.9	0.833	131.7W
APR 20	18	5	19.4	-19	-3	-27.4	366.5	3589.6	1956.3	3.3	-5.6	0.3	148.3	87.1	19.9	0.736	118.1W
APR 21	19	5	14.8	-17	-35	-3.0	370.2	3554.2	1937.1	4.5	-6.4	354.1	160.5	82.2	20.9	0.629	104.8W
APR 22	20	2	36.0	-15	-4	-35.8	374.3	3515.0	1915.7	5.4	-6.8	348.4	172.7	78.1	21.9	0.517	91.8W
APR 23	20	57	9.6	-11	-46	-44.8	378.6	3475.0	1893.9	6.0	-6.8	343.6	184.9	74.8	22.9	0.406	79.1W
APR 24	21	49	10.1	-7	-56	-33.1	382.9	3436.3	1872.8	6.2	-6.4	339.8	197.1	72.5	23.9	0.303	66.7W
APR 25	22	39	8.7	-3	-47	-59.4	386.9	3400.1	1853.1	6.2	-5.6	337.1	209.3	71.1	24.9	0.211	54.6W
APR 26	23	27	43.6	0	26	26.3	390.7	3367.1	1835.1	5.9	-4.6	335.6	221.5	70.7	25.9	0.133	42.7W
APR 27	0	15	33.2	4	35	33.5	394.2	3337.4	1818.9	5.4	-3.4	335.2	233.8	71.0	26.9	0.072	31.0W
APR 28	1	3	11.8	8	29	14.5	397.3	3311.1	1804.5	4.6	-2.1	336.0	246.0	72.1	27.9	0.029	19.5W
APR 29	1	51	6.0	11	58	13.9	400.1	3288.2	1792.1	3.6	-0.6	337.8	258.2	73.0	28.9	0.005	8.2W
APR 30	2	39	33.1	14	54	10.9	402.4	3269.2	1781.7	2.5	0.8	340.7	270.5	263.8	0.3	0.001	3.0E
MAY 1	3	28	39.3	17	9	54.6	404.3	3254.4	1773.7	1.2	2.2	344.4	282.7	262.6	1.3	0.015	14.0E
MAY 2	4	18	19.7	18	39	46.8	405.5	3244.7	1768.4	-0.1	3.5	348.8	294.9	265.9	2.3	0.047	25.0E
MAY 3	5	8	20.8	19	20	4.8	405.9	3241.1	1766.4	-1.5	4.6	353.7	307.2	269.8	3.3	0.095	35.8E
MAY 4	5	58	24.7	19	9	14.5	405.5	3244.6	1768.3	-2.8	5.6	358.9	319.4	273.9	4.3	0.158	46.7E
MAY 5	6	48	14.5	18	7	48.2	404.0	3256.2	1774.6	-4.1	6.3	4.1	331.6	277.9	5.3	0.233	57.6E
MAY 6	7	37	39.9	16	18	7.6	401.5	3276.8	1785.8	-5.3	6.7	9.2	343.8	281.5	6.3	0.318	68.5E
MAY 7	8	26	40.9	13	44	0.8	397.9	3306.7	1802.2	-6.2	6.9	13.8	356.0	284.8	7.3	0.412	79.7E
MAY 8	9	15	29.5	10	30	25.1	393.2	3345.9	1823.5	-7.0	6.7	17.8	8.3	287.4	8.3	0.511	91.1E
MAY 9	10	4	28.7	6	43	26.9	387.7	3393.5	1849.5	-7.4	6.2	21.1	20.5	289.4	9.3	0.612	102.8E
MAY 10	10	54	11.1	2	30	42.4	381.6	3447.5	1878.9	-7.5	5.4	23.4	32.7	290.6	10.3	0.712	114.9E
MAY 11	11	45	16.4	-1	-57	-59.7	375.4	3504.8	1910.1	-7.1	4.2	24.6	44.8	290.9	11.3	0.805	127.5E
MAY 12	12	38	26.1	-6	-29	-46.9	369.5	3561.1	1940.8	-6.3	2.8	24.5	57.0	290.5	12.3	0.886	140.5E
MAY 13	13	34	17.0	-10	-48	-7.4	364.3	3611.0	1968.0	-5.1	1.2	22.9	69.2	289.5	13.3	0.950	154.0E
MAY 14	14	33	8.9	-14	-33	-12.9	360.5	3649.0	1988.7	-3.6	-0.6	19.7	81.4	290.3	14.3	0.989	167.8E
MAY 15	15	34	50.0	-17	-24	-7.0	358.4	3670.7	2000.5	-1.7	-2.3	15.0	93.6	59.7	15.3	0.999	177.4W
MAY 16	16	38	27.2	-19	-2	-52.7	358.2	3673.3	2002.0	0.2	-3.9	9.2	105.7	87.6	16.3	0.980	163.7W
MAY 17	17	42	30.6	-19	-19	-22.9	359.7	3657.2	1993.2	2.1	-5.2	2.7	117.9	84.8	17.3	0.931	149.5W
MAY 18	18	45	19.1	-18	-14	-16.5	362.9	3625.2	1975.7	3.9	-6.2	356.1	130.1	80.6	18.3	0.858	135.6W
MAY 19	19	45	33.3	-15	-58	-3.4	367.3	3581.7	1952.0	5.4	-6.7	350.0	142.3	76.5	19.3	0.766	122.0W
MAY 20	20	42	34.5	-12	-47	-4.1	372.5	3531.9	1924.9	6.5	-6.7	344.8	154.5	73.1	20.3	0.662	108.8W
MAY 21	21	36	24.6	-8	-59	-3.8	378.0	3480.3	1896.8	7.1	-6.4	340.6	166.7	70.6	21.3	0.554	96.0W
MAY 22	22	27	32.8	-4	-50	-18.3	383.5	3430.8	1869.8	7.4	-5.8	337.6	178.9	69.0	22.3	0.446	83.7W
MAY 23	23	16	41.5	0	-34	-32.3	388.6	3385.6	1845.2	7.2	-4.8	335.8	191.1	68.2	23.3	0.344	71.6W
MAY 24	0	4	36.0	3	36	50.7	393.2	3346.3	1823.7	6.7	-3.6	335.2	203.4	68.2	24.3	0.250	59.9W
MAY 25	0	51	58.8	7	34	9.9	397.1	3313.3	1805.7	5.9	-2.3	335.7	215.6	68.8	25.3	0.169	48.5W
MAY 26	1	39	25.0	11	8	50.4	400.3	3286.6	1791.2	4.9	-0.9	337.3	227.8	69.8	26.3	0.102	37.2W
MAY 27	2	27	20.4	14	13	0.9	402.8	3265.9	1779.9	3.7	0.5	339.9	240.1	70.8	27.3	0.051	26.1W
MAY 28	3	15	58.6	16	39	33.1	404.7	3250.8	1771.7	2.4	1.9	343.4	252.3	69.7	28.3	0.018	15.2W
MAY 29	4	5	20.7	18	22	19.8	405.9	3241.1	1766.4	1.1	3.2	347.6	264.6	49.7	29.3	0.002	4.9W
MAY 30	4	55	15.5	19	16	46.1	406.5	3236.7	1764.0	-0.3	4.3	352.4	276.8	290.2	0.6	0.004	7.4E
MAY 31	5	45	23.1	19	20	20.4	406.4	3237.7	1764.5	-1.6	5.3	357.6	289.1	281.2	1.6	0.024	17.9E
JUN 1	6	35	21.0	18	32	52.6	405.5	3244.5	1768.3	-2.9	6.1	2.8	301.3	282.0	2.6	0.062	28.7E</

Date (0 DT)	RA			Dec (° ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Coing	P.A. Limb	Age (day)	Phase	Solar Elong
	h	m	s					l	b	c					
JUL 1	8	50	46.8	12 29 15.8	399.6	3292.2	1794.2	-4.9	6.5	16.0	307.9	293.4	3.0	0.082	33.3E
JUL 2	9	38	50.5	9 4 18.3	396.4	3318.9	1808.8	-5.7	6.2	19.6	320.2	293.8	4.0	0.144	44.5E
JUL 3	10	26	42.3	5 12 43.1	392.6	3351.3	1826.5	-6.4	5.5	22.3	332.4	294.3	5.0	0.221	56.0E
JUL 4	11	14	53.4	1 3 5.0	388.2	3389.3	1847.2	-6.8	4.6	24.1	344.7	294.4	6.0	0.311	67.7E
JUL 5	12	4 3.3	-3-14-58.6	383.3	3432.5	1870.7	1870.7	-7.0	3.4	24.8	356.9	293.9	7.0	0.412	79.7E
JUL 6	12	54	56.2	-7-30-17.0	378.1	3479.8	1896.5	-6.9	2.0	24.2	9.1	292.7	8.0	0.519	92.1E
JUL 7	13	48	15.5	-11-29-28.6	372.8	3528.8	1923.2	-6.4	0.4	22.3	21.3	290.7	9.0	0.629	104.8E
JUL 8	14	44	34.5	-14-56-43.1	367.9	3576.3	1949.1	-5.5	-1.2	18.9	33.5	287.9	10.0	0.735	117.9E
JUL 9	15	44	3.5	-17-34-21.6	363.6	3618.0	1971.8	-4.3	-2.8	14.2	45.7	284.7	11.0	0.831	131.4E
JUL 10	16	46	15.4	-19-5-19.5	360.5	3649.2	1988.8	-2.6	-4.2	8.4	57.9	281.9	12.0	0.911	145.1E
JUL 11	17	50	1.3	-19-17-11.1	358.9	3665.5	1997.7	-0.8	-5.4	1.8	70.1	281.8	13.0	0.967	159.0E
JUL 12	18	53	44.3	-18-6-25.1	359.1	3663.9	1996.8	1.3	-6.2	355.2	82.3	301.0	14.0	0.995	172.0E
JUL 13	19	55	49.4	-15-40-12.1	361.0	3644.1	1986.0	3.2	-6.5	348.9	94.5	46.1	15.0	0.994	170.8W
JUL 14	20	55	12.9	-12-14-24.8	364.7	3608.0	1966.3	4.9	-6.4	343.6	106.7	61.7	16.0	0.963	157.8W
JUL 15	21	51	32.8	-8-9-6.0	369.6	3559.9	1940.1	6.3	-5.9	339.6	118.9	63.8	17.0	0.908	144.6W
JUL 16	22	45	1.7	-3-44-7.3	375.4	3504.9	1910.2	7.2	-5.0	336.8	131.1	64.4	18.0	0.833	131.6W
JUL 17	23	36	12.8	0 43 28.3	381.5	3448.4	1879.4	7.5	-3.9	335.4	143.3	65.0	19.0	0.744	119.1W
JUL 18	0	25	47.7	5 0 10.1	387.6	3394.6	1850.1	7.4	-2.6	335.3	155.5	66.1	20.0	0.648	107.0W
JUL 19	1	14	27.6	8 55 36.5	393.1	3347.0	1824.1	6.9	-1.2	336.3	167.7	67.8	21.0	0.548	95.3W
JUL 20	2	2	48.7	12 21 44.4	397.8	3307.5	1802.6	6.0	0.2	338.4	179.9	70.0	22.0	0.449	84.0W
JUL 21	2	51	18.9	15 12 3.1	401.4	3277.4	1786.2	4.8	1.6	341.5	192.2	72.7	23.0	0.354	72.9W
JUL 22	3	40	15.8	17 21 5.5	404.0	3256.9	1775.0	3.5	2.9	345.4	204.4	75.7	24.0	0.266	61.9W
JUL 23	4	29	45.2	18 44 21.4	405.4	3245.6	1768.9	2.1	4.0	350.0	216.6	78.8	25.0	0.187	51.1W
JUL 24	5	19	42.1	19 18 30.1	405.7	3242.8	1767.4	0.8	5.0	355.0	228.9	81.5	26.0	0.119	40.3W
JUL 25	6	9	52.2	19 1 45.4	405.1	3247.6	1769.9	-0.5	5.8	0.2	241.1	83.2	27.0	0.065	29.6W
JUL 26	6	59	57.2	17 54 20.5	403.7	3258.7	1776.0	-1.7	6.3	5.5	253.4	81.7	28.0	0.027	18.9W
JUL 27	7	49	40.4	15 58 41.5	401.7	3275.2	1785.0	-2.8	6.6	10.5	265.6	65.9	29.0	0.006	8.7W
JUL 28	8	38	51.6	13 19 24.6	399.2	3295.9	1796.3	-3.7	6.5	15.0	277.9	334.8	0.4	0.003	6.4E
JUL 29	9	27	31.0	10 2 59.4	396.3	3320.2	1809.5	-4.4	6.2	18.8	290.1	304.6	1.4	0.020	16.2E
JUL 30	10	15	50.3	6 17 24.9	393.0	3347.4	1824.4	-5.0	5.5	21.8	302.4	299.1	2.4	0.057	27.5E
JUL 31	11	4	11.6	2 11 50.6	389.5	3377.4	1840.7	-5.5	4.6	23.8	314.6	297.0	3.4	0.112	39.1E
AUG 1	11	53	5.7	-2-3-33.6	385.8	3409.8	1858.3	-5.7	3.4	24.8	326.8	295.5	4.4	0.186	51.0E
AUG 2	12	43	9.0	-6-17-34.1	382.0	3444.4	1877.2	-5.8	2.0	24.5	339.1	293.8	5.4	0.275	63.1E
AUG 3	13	34	59.5	-10-17-41.8	378.0	3480.7	1897.0	-5.6	0.5	22.9	351.3	291.4	6.4	0.376	75.5E
AUG 4	14	29	10.0	-13-50-3.2	374.0	3517.5	1917.0	-5.2	-1.0	20.0	3.5	288.4	7.4	0.486	88.2E
AUG 5	15	25	59.5	-16-39-37.7	370.3	3553.0	1936.4	-4.4	-2.6	15.8	15.7	284.7	8.4	0.598	101.2E
AUG 6	16	25	22.4	-18-31-28.3	367.0	3584.7	1953.6	-3.4	-4.0	10.4	27.9	280.6	9.4	0.708	114.5E
AUG 7	17	26	40.7	-19-13-5.5	364.5	3609.2	1967.0	-2.0	-5.2	4.3	40.1	276.4	10.4	0.808	128.0E
AUG 8	18	28	47.6	-18-37-36.1	363.1	3623.4	1974.8	-0.5	-6.0	357.7	52.3	273.0	11.4	0.892	141.6E
AUG 9	19	30	23.6	-16-46-16.1	363.0	3624.5	1975.3	1.2	-6.5	351.4	64.5	272.1	12.4	0.954	155.2E
AUG 10	20	30	20.4	-13-48-53.4	364.3	3611.0	1968.0	2.9	-6.5	345.7	76.7	281.2	13.4	0.990	168.4E
AUG 11	21	27	58.0	-10-1-39.0	367.1	3583.5	1953.0	4.4	-6.1	341.1	88.9	16.5	14.4	0.998	174.3W
AUG 12	22	23	7.7	-5-43-37.3	371.2	3544.3	1931.6	5.6	-5.3	337.8	101.1	55.3	15.4	0.978	162.9W
AUG 13	23	16	5.0	-1-13-31.6	376.2	3497.0	1905.9	6.4	-4.2	335.8	113.3	61.3	16.4	0.934	150.2W
AUG 14	0	7	18.8	3 12 19.0	381.8	3446.1	1878.1	6.7	-2.9	335.2	125.4	64.1	17.4	0.871	137.8W
AUG 15	0	57	22.6	7 20 44.3	387.4	3395.8	1850.7	6.6	-1.5	335.8	137.6	66.5	18.4	0.792	125.7W
AUG 16	1	46	48.2	11 1 34.9	392.7	3349.9	1825.7	6.1	0.0	337.6	149.8	69.2	19.4	0.704	113.9W
AUG 17	2	36	2.0	14 7 9.3	397.3	3311.1	1804.6	5.2	1.4	340.5	162.0	72.2	20.4	0.610	102.6W
AUG 18	3	25	22.6	16 31 38.3	401.0	3281.2	1788.3	4.1	2.8	344.2	174.3	75.7	21.4	0.514	91.4W
AUG 19	4	14	59.6	18 10 40.0	403.4	3261.3	1777.4	2.8	4.0	348.6	186.5	79.3	22.4	0.418	80.5W
AUG 20	5	4	53.7	19 1 9.6	404.6	3251.5	1772.1	1.5	5.0	353.5	198.7	83.1	23.4	0.327	69.6W
AUG 21	5	54	58.0	19 1 22.9	404.6	3251.6	1772.1	0.2	5.8	358.7	210.9	86.8	24.4	0.242	58.8W
AUG 22	6	45	1.5	18 11 7.7	403.5	3260.7	1777.1	-1.0	6.3	4.0	223.2	90.1	25.4	0.166	47.9W
AUG 23	7	34	52.7	16 31 56.3	401.4	3277.5	1786.2	-2.1	6.6	9.1	235.4	92.5	26.4	0.101	36.9W
AUG 24	8	24	23.9	14 7 14.3	398.6	3300.5	1798.8	-3.1	6.6	13.8	247.6	93.1	27.4	0.050	25.8W
AUG 25	9	13	34.6	11 2 22.3	395.3	3327.9	1813.7	-3.8	6.3	17.8	259.9	88.7	28.4	0.016	14.7W
AUG 26	10	2	32.6	7 24 32.8	391.8	3358.0	1830.1	-4.3	5.7	21.1	272.1	47.8	29.4	0.002	4.8W
AUG 27	10	51	34.6	3 22 43.0	388.2	3389.2	1847.1	-4.6	4.7	23.4	284.4	312.6	0.8	0.008	10.3E
AUG 28	11	41	4.4	0-52-34.1	384.7	3420.0	1863.9	-4.7	3.6	24.7	296.6	300.1	1.8	0.036	21.9E
AUG 29	12	31	30.8	-5-9-19.3	381.4	3449.6	1880.0	-4.6	2.2	24.7	308.8	295.6	2.8	0.086	34.1E
AUG 30	13	23	23.5	-9-14-19.6	378.4	3477.2	1895.1	-4.4	0.6	23.3	321.1	292.2	3.8	0.157	46.5E
AUG 31	14	17	8.2	-12-53-27.3	375.6	3502.6	1908.9	-4.0	-1.0	20.7	333.3	288.7	4.8	0.245	59.2E
SEP 1	15	12	59.6	-15-52-16.7	373.2	3525.3	1921.3	-3.4	-2.5	16.8	345.5	284.7	5.8	0.347	72.0E
SEP 2	16	10	53.9	-17-57-9.7	371.1	3545.0	1932.0	-2.6	-3.9	11.8	357.7	280.3	6.8	0.458	85.0E
SEP 3	17	10	23.4	-18-56-57.7	369.5	3560.9	1940.7	-1.7	-5.1	5.9	9.9	275.5	7.8	0.572	98.2E
SEP 4	18	10	38.8	-18-45-4.2	368.4	3571.7	1946.1								

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		(h m s)	(d ' ")	(d ' ")					l	b	c					
OCT 1	1	17 57	2.2	-18-45-34.0	369.7	3558.6	1939.4	0.5	-6.0	1.0	351.6	269.6	6.3	0.431	82.0E	
OCT 2	2	18 56	29.2	-17-39-15.2	370.4	3551.8	1935.7	1.5	-6.6	354.8	3.8	264.9	7.3	0.546	95.1E	
OCT 3	3	19 54	35.5	-15-28-14.4	371.6	3540.5	1929.6	2.5	-6.8	348.9	15.9	260.7	8.3	0.658	108.3E	
OCT 4	4	20 50	53.0	-12-23-23.2	373.2	3525.0	1921.1	3.4	-6.5	343.9	28.1	257.4	9.3	0.760	121.3E	
OCT 5	5	21 45	16.5	-8-38-24.6	375.3	3505.4	1910.4	4.2	-5.9	339.9	40.3	255.1	10.3	0.849	134.2E	
OCT 6	6	22 37	58.7	-4-28-12.3	377.9	3481.5	1897.4	4.8	-5.0	337.0	52.5	254.0	11.3	0.919	146.9E	
OCT 7	7	23 29	23.6	0 -7-38.9	381.0	3453.6	1882.2	5.2	-3.7	335.5	64.6	254.6	12.3	0.968	159.5E	
OCT 8	8	0 19	58.5	4 9 10.3	384.4	3422.4	1865.2	5.3	-2.3	335.2	76.8	259.4	13.3	0.995	171.8E	
OCT 9	9	1 10	9.2	8 9 29.0	388.2	3389.0	1847.0	5.1	-0.8	336.2	88.9	58.4	14.3	0.999	175.9W	
OCT 10	10	2 0	15.6	11 42 12.9	392.1	3355.3	1828.6	4.7	0.7	338.3	101.1	71.7	15.3	0.981	164.1W	
OCT 11	11	2 50	29.4	14 38 18.2	395.9	3323.2	1811.1	4.0	2.2	341.5	113.3	76.1	16.3	0.944	152.6W	
OCT 12	12	3 40	53.1	16 50 54.8	399.3	3294.8	1795.7	3.1	3.5	345.5	125.4	80.2	17.3	0.890	141.2W	
OCT 13	13	4 31	21.2	18 15 31.8	402.0	3272.3	1783.4	2.0	4.7	350.2	137.6	84.4	18.3	0.823	130.1W	
OCT 14	14	5 21	42.5	18 49 55.5	403.9	3257.5	1775.3	0.8	5.6	355.3	149.8	88.6	19.3	0.745	119.2W	
OCT 15	15	6 11	44.5	18 33 55.7	404.6	3251.7	1772.2	-0.5	6.3	0.5	161.9	92.8	20.3	0.658	108.3W	
OCT 16	16	7 1	17.7	17 29 5.7	404.1	3256.0	1774.5	-1.8	6.7	5.7	174.1	96.7	21.3	0.566	97.5W	
OCT 17	17	7 50	19.3	15 38 19.1	402.3	3270.7	1782.5	-3.0	6.9	10.7	186.3	100.3	22.3	0.471	86.6W	
OCT 18	18	8 38	54.8	13 5 32.7	399.2	3295.6	1796.1	-4.1	6.7	15.1	198.5	103.4	23.3	0.376	75.5W	
OCT 19	19	9 27	18.8	9 55 41.1	395.1	3329.9	1814.8	-4.9	6.3	18.9	210.7	106.0	24.3	0.284	64.2W	
OCT 20	20	10 15	54.1	6 14 47.6	390.2	3371.8	1837.6	-5.5	5.5	21.9	222.9	107.8	25.3	0.197	52.6W	
OCT 21	21	11 5	9.9	2 10 30.3	384.8	3418.8	1863.2	-5.7	4.4	24.0	235.1	108.8	26.3	0.121	40.7W	
OCT 22	22	11 55	39.6	-2 -7-22.0	379.4	3467.4	1889.8	-5.6	3.1	24.8	247.3	109.0	27.3	0.060	28.4W	
OCT 23	23	12 47	56.6	-6-26-17.3	374.4	3513.8	1915.0	-5.1	1.6	24.4	259.5	108.6	28.3	0.019	15.6W	
OCT 24	24	13 42	28.9	-10-30-52.5	370.2	3553.8	1936.8	-4.3	-0.1	22.5	271.7	113.2	29.3	0.000	2.5W	
OCT 25	25	14 39	30.4	-14 -3-35.4	367.1	3583.9	1953.2	-3.2	-1.8	19.3	283.9	280.4	0.8	0.009	10.9E	
OCT 26	26	15 38	51.3	-16-46-39.9	365.3	3601.7	1962.9	-1.9	-3.4	14.6	296.2	277.5	1.8	0.045	24.4E	
OCT 27	27	16 39	52.0	-18-25 -5.4	364.8	3606.5	1965.5	-0.5	-4.8	8.9	308.4	273.1	2.8	0.107	38.1E	
OCT 28	28	17 41	27.0	-18-49-51.3	365.5	3599.2	1961.6	1.0	-5.8	2.6	320.6	268.3	3.8	0.191	51.6E	
OCT 29	29	18 42	21.3	-17-59-55.6	367.3	3582.1	1952.2	2.3	-6.5	356.2	332.8	263.4	4.8	0.291	65.1E	
OCT 30	30	19 41	31.9	-16 -1-56.3	369.8	3557.8	1939.0	3.5	-6.8	350.2	344.9	259.1	5.8	0.401	78.4E	
OCT 31	31	20 38	23.5	-13 -7-55.3	372.8	3529.1	1923.4	4.5	-6.6	344.9	357.1	255.4	6.8	0.514	91.5E	
NOV 1	1	21 32	51.2	-9-32-26.1	376.1	3498.3	1906.6	5.2	-6.1	340.7	9.3	252.6	7.8	0.625	104.3E	
NOV 2	2	22 25	13.1	-5-30-21.3	379.5	3466.8	1889.4	5.7	-5.2	337.6	21.5	250.7	8.8	0.727	116.9E	
NOV 3	3	23 16	0.6	-1-15-44.5	383.0	3435.5	1872.4	5.9	-4.1	335.7	33.6	249.6	9.8	0.817	129.2E	
NOV 4	4	0 5	49.5	2 58 30.9	386.4	3405.0	1855.7	5.8	-2.7	335.1	45.8	249.2	10.8	0.891	141.4E	
NOV 5	5	0 55	13.4	7 0 39.2	389.8	3375.4	1839.6	5.5	-1.3	335.7	57.9	249.3	11.8	0.947	153.3E	
NOV 6	6	1 44	39.4	10 40 0.7	393.1	3346.9	1824.1	5.0	0.3	337.5	70.1	248.5	12.8	0.983	165.0E	
NOV 7	7	2 34	24.7	13 47 8.5	396.3	3320.0	1809.4	4.3	1.7	340.4	82.2	231.7	13.8	0.999	176.3E	
NOV 8	8	3 24	35.0	16 14 7.7	399.2	3295.5	1796.0	3.4	3.1	344.2	94.4	92.1	14.8	0.995	171.8W	
NOV 9	9	4 15	4.3	17 55 1.6	401.8	3274.3	1784.5	2.4	4.3	348.7	106.5	89.3	15.8	0.972	160.7W	
NOV 10	10	5 5	37.5	18 46 14.2	403.8	3257.8	1775.5	1.2	5.3	353.7	118.7	91.6	16.8	0.932	149.8W	
NOV 11	11	5 55	55.0	18 46 39.4	405.1	3247.4	1769.8	0.0	6.1	358.9	130.8	94.9	17.8	0.877	138.9W	
NOV 12	12	6 45	39.0	17 57 29.7	405.5	3244.3	1768.2	-1.3	6.6	4.1	143.0	98.5	18.8	0.809	128.1W	
NOV 13	13	7 34	38.6	16 21 48.3	404.8	3249.9	1771.2	-2.6	6.8	9.2	155.1	101.9	19.8	0.730	117.3W	
NOV 14	14	8 22	53.8	14 3 54.3	403.0	3265.0	1779.4	-3.9	6.7	13.7	167.3	105.0	20.8	0.642	106.4W	
NOV 15	15	9 10	35.8	11 8 53.4	399.9	3290.1	1793.1	-5.0	6.4	17.7	179.4	107.6	21.8	0.549	95.4W	
NOV 16	16	9 58	7.2	7 42 27.0	395.7	3325.2	1812.3	-5.9	5.7	21.0	191.6	109.7	22.8	0.451	84.2W	
NOV 17	17	10 45	59.4	3 51 1.1	390.5	3369.5	1836.4	-6.5	4.8	23.3	203.8	111.1	23.8	0.353	72.7W	
NOV 18	18	11 34	50.7	0-17-41.2	384.6	3421.0	1864.4	-6.8	3.6	24.6	216.0	111.8	24.8	0.257	60.9W	
NOV 19	19	12 25	23.6	-4-33-52.4	378.4	3476.7	1894.8	-6.7	2.2	24.8	228.2	111.8	25.8	0.170	48.6W	
NOV 20	20	13 18	19.2	-8-44-50.4	372.4	3532.5	1925.2	-6.2	0.6	23.5	240.3	111.4	26.8	0.095	35.8W	
NOV 21	21	14 14	9.7	-12-34-33.4	367.2	3583.3	1952.9	-5.3	-1.1	20.9	252.5	111.4	27.8	0.039	22.7W	
NOV 22	22	15 13	6.4	-15-44-21.1	363.1	3623.9	1975.0	-3.9	-2.7	16.7	264.7	118.4	28.8	0.007	9.3W	
NOV 23	23	16 14	46.0	-17-55-22.5	360.5	3649.6	1989.0	-2.2	-4.2	11.3	276.9	246.1	0.3	0.003	5.8E	
NOV 24	24	17 18	5.5	-18-52-46.3	359.7	3657.9	1993.6	-0.3	-5.4	5.0	289.1	262.1	1.3	0.028	19.3E	
NOV 25	25	18 21	32.5	-18-29-58.8	360.6	3648.6	1988.5	1.6	-6.3	358.4	301.3	260.4	2.3	0.082	33.2E	
NOV 26	26	19 23	33.5	-16-50-41.5	363.1	3623.7	1974.9	3.4	-6.7	351.9	313.5	257.0	3.3	0.160	47.0E	
NOV 27	27	20 23	2.3	-14 -7-10.7	366.7	3587.5	1955.2	4.9	-6.6	346.2	325.7	253.6	4.3	0.255	60.6E	
NOV 28	28	21 19	33.3	-10-36-15.7	371.2	3544.3	1931.6	6.0	-6.1	341.6	337.9	250.8	5.3	0.361	73.8E	
NOV 29	29	22 13	16.4	-6-35-25.0	376.1	3498.4	1906.6	6.8	-5.3	338.2	350.1	248.9	6.3	0.472	86.6E	
NOV 30	30	23 4	44.0	-2-20-27.2	381.0	3453.4	1882.1	7.1	-4.2	336.0	2.2	247.8	7.3	0.580	99.1E	
DEC 1	1	23 54	37.7	1 55 9.9	385.7	3411.3	1859.1	7.1	-2.9	335.1	14.4	247.4	8.3	0.682	111.2E	
DEC 2	2	0 43	39.9													

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(° ' ")				l	b	c					
JAN 1	2 59 13.3	14 54 45.4		399.4	3294.0	1795.2	5.6	2.7	342.2	31.3	252.1	9.9	0.801	126.8E
JAN 2	3 48 44.9	17 2 3.8		402.3	3270.0	1782.1	4.5	3.9	346.3	43.4	254.3	10.9	0.871	137.8E
JAN 3	4 38 40.4	18 23 15.6		404.5	3252.9	1772.8	3.3	4.9	351.0	55.6	256.0	11.9	0.927	148.6E
JAN 4	5 28 48.6	18 55 21.8		405.8	3242.0	1766.9	2.0	5.7	356.1	67.7	255.4	12.9	0.968	159.3E
JAN 5	6 18 50.5	18 37 24.5		406.5	3236.9	1764.1	0.7	6.3	1.4	79.8	245.4	13.9	0.992	169.4E
JAN 6	7 8 25.4	17 30 42.0		406.4	3237.0	1764.2	-0.6	6.5	6.6	92.0	170.8	14.9	0.998	174.8W
JAN 7	7 57 16.8	15 38 42.8		405.8	3242.2	1767.0	-1.8	6.5	11.4	104.1	122.9	15.9	0.987	166.8W
JAN 8	8 45 17.6	13 6 42.2		404.5	3252.5	1772.6	-3.0	6.3	15.8	116.2	116.2	16.9	0.958	156.3W
JAN 9	9 32 32.2	10 1 8.2		402.5	3268.5	1781.3	-4.2	5.7	19.4	128.4	114.9	17.9	0.913	145.6W
JAN 10	10 19 17.0	6 29 13.1		399.8	3290.6	1793.4	-5.2	4.9	22.2	140.5	114.8	18.9	0.852	134.6W
JAN 11	11 5 58.6	2 38 36.1		396.4	3319.4	1809.1	-6.2	3.8	24.0	152.6	114.7	19.9	0.776	123.4W
JAN 12	11 53 12.0	-1-22-33.6		392.1	3355.1	1828.6	-6.9	2.6	24.9	164.8	114.2	20.9	0.689	112.0W
JAN 13	12 41 38.4	-5-25-16.5		387.2	3397.8	1851.8	-7.4	1.2	24.5	176.9	113.2	21.9	0.591	100.4W
JAN 14	13 32 1.6	-9-19-7.8		381.7	3446.6	1878.4	-7.6	-0.3	23.0	189.1	111.5	22.9	0.487	88.4W
JAN 15	14 25 3.0	-12-51-40.3		376.0	3499.5	1907.2	-7.4	-1.8	20.2	201.2	109.1	23.9	0.380	76.0W
JAN 16	15 21 12.1	-15-48-10.2		370.2	3553.4	1936.6	-6.7	-3.3	16.1	213.4	106.0	24.9	0.275	63.1W
JAN 17	16 20 34.2	-17-52-22.6		365.1	3604.0	1964.2	-5.6	-4.6	10.7	225.6	102.6	25.9	0.178	49.9W
JAN 18	17 22 38.2	-18-48-56.7		360.9	3645.8	1986.9	-4.0	-5.6	4.5	237.8	99.6	26.9	0.097	36.2W
JAN 19	18 26 14.2	-18-27-24.6		358.2	3673.4	2002.0	-2.0	-6.3	357.8	250.0	99.2	27.9	0.038	22.4W
JAN 20	19 29 49.1	-16-46-10.3		357.3	3682.7	2007.1	0.2	-6.5	351.2	262.2	114.2	28.9	0.006	9.1W
JAN 21	20 31 54.9	-13-54-2.4		358.3	3671.8	2001.1	2.3	-6.3	345.4	274.3	219.9	0.5	0.005	8.2E
JAN 22	21 31 34.8	-10-8-6.4		361.3	3641.8	1984.8	4.3	-5.6	340.7	286.5	240.3	1.5	0.034	21.1E
JAN 23	22 28 30.3	-5-49-18.0		365.8	3596.7	1960.2	5.9	-4.5	337.4	298.7	243.4	2.5	0.089	34.6E
JAN 24	23 22 54.3	-1-18-4.7		371.5	3541.9	1930.3	7.0	-3.2	335.5	310.9	244.6	3.5	0.164	47.7E
JAN 25	0 15 17.3	3 8 10.2		377.7	3483.1	1898.3	7.5	-1.8	335.1	323.1	245.8	4.5	0.255	60.5E
JAN 26	1 6 16.0	7 15 52.9		384.1	3425.6	1867.0	7.6	-0.2	336.0	335.3	247.5	5.5	0.353	72.7E
JAN 27	1 56 25.4	10 54 56.4		390.0	3373.2	1838.4	7.3	1.2	338.1	347.4	249.7	6.5	0.454	84.6E
JAN 28	2 46 13.9	13 57 52.4		395.3	3328.5	1814.0	6.6	2.6	341.2	359.6	252.5	7.5	0.554	96.1E
JAN 29	3 36 0.8	16 19 7.9		399.6	3292.7	1794.5	5.6	3.8	345.2	11.7	255.6	8.5	0.649	107.2E
JAN 30	4 25 54.8	17 54 39.8		402.8	3266.4	1780.2	4.4	4.9	349.8	23.9	258.9	9.5	0.737	118.2E
JAN 31	5 15 54.3	18 41 49.2		404.9	3249.3	1770.9	3.2	5.7	354.8	36.0	262.1	10.5	0.816	129.0E
FEB 1	6 5 49.7	18 39 29.6		406.0	3240.7	1766.2	1.8	6.3	0.1	48.2	264.9	11.5	0.882	139.7E
FEB 2	6 55 27.3	17 48 18.5		406.1	3239.6	1765.6	0.5	6.6	5.3	60.3	266.6	12.5	0.935	150.4E
FEB 3	7 44 33.7	16 10 45.2		405.4	3244.9	1768.5	-0.7	6.6	10.2	72.5	265.3	13.5	0.973	161.1E
FEB 4	8 33 0.6	13 51 6.5		404.1	3255.7	1774.4	-1.9	6.3	14.7	84.6	261.3	14.5	0.994	171.2E
FEB 5	9 20 47.9	10 55 13.3		402.2	3271.2	1782.8	-3.0	5.8	18.6	96.7	157.5	15.5	0.998	174.3W
FEB 6	10 8 4.6	7 30 11.1		399.8	3290.6	1793.4	-4.0	4.9	21.6	108.9	124.4	16.5	0.982	164.7W
FEB 7	10 55 9.1	3 44 2.0		397.0	3313.9	1806.1	-4.9	3.9	23.7	121.0	118.4	17.5	0.949	153.7W
FEB 8	11 42 27.4	0-14-26.7		393.8	3340.9	1820.8	-5.6	2.6	24.8	133.1	115.9	18.5	0.897	142.4W
FEB 9	12 30 31.5	-4-15-44.0		390.2	3371.7	1837.6	-6.2	1.2	24.7	145.3	114.0	19.5	0.828	130.8W
FEB 10	13 19 56.9	-8-9-27.7		386.2	3406.3	1856.5	-6.6	-0.2	23.5	157.4	111.8	20.5	0.743	119.0W
FEB 11	14 11 18.3	-11-44-10.8		381.9	3444.6	1877.3	-6.7	-1.7	21.0	169.6	109.1	21.5	0.647	106.9W
FEB 12	15 5 4.6	-14-47-15.3		377.4	3485.7	1899.7	-6.5	-3.2	17.3	181.7	105.8	22.5	0.541	94.5W
FEB 13	16 1 30.2	-17-5-10.8		372.9	3527.9	1922.7	-5.9	-4.5	12.5	193.9	101.9	23.5	0.430	81.8W
FEB 14	17 0 26.2	-18-24-44.9		368.7	3568.6	1944.9	-5.0	-5.5	6.8	206.1	97.6	24.5	0.320	68.8W
FEB 15	18 1 15.5	-18-35-15.7		365.0	3604.4	1964.4	-3.7	-6.3	0.4	218.3	93.2	25.5	0.217	55.4W
FEB 16	19 2 56.5	-17-31-23.6		362.3	3631.0	1978.9	-2.1	-6.6	353.9	230.4	89.5	26.5	0.128	41.8W
FEB 17	20 4 18.5	-15-15-29.2		361.0	3644.6	1986.3	-0.3	-6.5	347.8	242.6	87.6	27.5	0.059	28.0W
FEB 18	21 4 22.2	-11-57-58.9		361.2	3642.2	1985.0	1.6	-5.9	342.6	254.8	91.5	28.5	0.016	14.3W
FEB 19	22 2 32.7	-7-55-34.8		363.1	3623.2	1974.6	3.3	-5.0	338.7	267.0	163.8	0.0	0.001	3.8W
FEB 20	22 58 42.1	-3-28-1.0		366.6	3588.9	1956.0	4.8	-3.7	336.2	279.2	236.1	1.0	0.015	14.2E
FEB 21	23 53 2.5	1 5 9.6		371.3	3543.0	1930.9	5.9	-2.2	335.1	291.4	243.3	2.0	0.056	27.2E
FEB 22	0 45 57.1	5 26 51.0		377.0	3490.2	1902.2	6.5	-0.6	335.5	303.6	246.5	3.0	0.118	40.0E
FEB 23	1 37 51.3	9 23 25.7		383.0	3435.5	1872.4	6.7	0.9	337.2	315.8	249.3	4.0	0.196	52.4E
FEB 24	2 29 7.3	12 44 48.9		388.9	3383.4	1844.0	6.5	2.4	340.1	328.0	252.4	5.0	0.285	64.4E
FEB 25	3 20 1.3	15 24 1.4		394.2	3337.4	1818.9	5.9	3.7	343.9	340.2	255.9	6.0	0.380	76.0E
FEB 26	4 10 41.3	17 16 34.8		398.7	3299.7	1798.4	5.0	4.8	348.4	352.4	259.6	7.0	0.478	87.3E
FEB 27	5 1 8.2	18 20 2.1		402.1	3271.9	1783.2	3.8	5.7	353.3	4.5	263.5	8.0	0.574	98.3E
FEB 28	5 51 17.2	18 33 39.1		404.3	3254.3	1773.6	2.6	6.3	358.6	16.7	267.4	9.0	0.665	109.2E
FEB 29	6 41 0.8	17 58 13.2		405.2	3246.7	1769.5	1.3	6.7	3.8	28.9	271.1	10.0	0.751	120.0E
MAR 1	7 30 12.3	16 35 57.7		405.0	3248.5	1770.4	0.0	6.7	8.9	41.0	274.3	11.0	0.827	130.8E
MAR 2	8 18 48.4	14 30 27.7		403.8	3258.4	1775.9	-1.2	6.5	13.5	53.2	276.8	12.0	0.892	141.6E
MAR 3	9 6 52.0	11 46 37.0		401.7	3275.2	1785.0	-2.3	6.0	17.6	65.3	278.0	13.0	0.944	152.6E
MAR 4	9 54 32.9	8 30 36.1		399.0	3297.3	1797.0	-3.2	5.2	20.9	77.5	276.3	14.0	0.980	163.7E
MAR 5	10 42 7.3	4 49 50.7		395.9	3323.1	1811.1	-4.0	4.2	23.3	89.6	257.2	15.0	0.998	174.5E
MAR 6	11 29 57.6	0 53 1.8		392.6	3351.1	1826.4	-4.7	2.9	24.6	101.8	130.2	16.0	0.996	172.6E
MAR 7	12 18 30.2	-3-9-55.3		389.2	3380.4	1842.3	-5.1	1.5	24.9	113.9	116.5	17.0	0.973	161.2W
MAR 8	13 8 13.7	-7-7-54.6		385.8	3409.9	1858.4	-5.4	-0.1	23.9	126.1	112.2	18.0	0.930	149.3W
MAR 9	13 59 35.1	-10-48-47.4		382.5	3439.3	1874.4	-5.5	-1.6	21.7	138.2	108.8	19.0	0.867	137.1W
MAR 10	14 52 55.3	-13-59-41.9		379.3	3468.2	1890.2	-5.3	-3.1	18.2	150.4	105.2	20.0	0.786	124.7W
MAR 11	15 48 23.1	-16-27-41.0		376.3	3496.4	1905.5	-4.9	-4.4	13.7	162.5	101.1	21.0	0.689	112.1W
MAR 12	16 45 49.7	-18-0-49.1		373.4	3523.3	1920.2	-4.3	-5.5	8.2	174.7	96.6	22.0	0.582	99.3W
MAR 13	17 44 45.6	-18-29-46.2		370.8	3548.0	1933.7	-3.4	-6.3	2.1	186.9	91.8	23.0	0.469	86.3W
MAR 14	18 44 24.7	-17-49-35.6		368.6	3569.0	1945.1	-2.3	-6.7	355.8	199.1	87.2	24.0	0.356	73.2W
MAR 15	19 43 55.0	-16-1-5.7		367.1	3584.3	1953.4	-1.1	-6.7	349.7	211.3	83.0	25.0	0.250	59.8W
MAR 16	20 42 31.9	-13-11-12.3		366.3	3591.5	1957.4	0.3	-6.3	344.4	223.5	79.6	26.0	0.156	46.4W
MAR 17	21 39 48.3	-9-32-10.7		366.6	3588.7	1955.8	1.7	-5.4	340.0	235.7	77.5	27.0	0.080	32.9W
MAR 18	22 35 36.7	-5-19-55.0		368.1	3574.5	1948.1	3.0	-4.2	337.0	247.9	77.5	28.0	0.029	19.4W

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
APR 1	10 26	7.9	6 3 36.3	396.1	3321.7	1810.3	-4.0	4.5	22.6	58.6	286.6	12.6	0.907	144.3E	
APR 2	11 14	1.1	2 11 21.8	392.1	3355.4	1828.7	-4.6	3.3	24.3	70.8	287.3	13.6	0.957	155.9E	
APR 3	12 2	44.2	-1-51-54.2	387.9	3391.4	1848.3	-5.0	1.9	24.9	82.9	286.8	14.6	0.989	167.8E	
APR 4	12 52	46.5	-5-55-16.6	383.9	3427.2	1867.8	-5.2	0.4	24.3	95.1	217.8	15.6	1.000	179.7E	
APR 5	13 44	34.7	-9-46-2.6	380.2	3460.8	1886.1	-5.0	-1.2	22.4	107.3	106.4	16.6	0.989	167.7W	
APR 6	14 38	27.0	-13-10-6.9	377.0	3490.2	1902.2	-4.7	-2.8	19.3	119.4	103.2	17.6	0.953	155.0W	
APR 7	15 34	27.3	-15-53-3.0	374.4	3514.4	1915.4	-4.1	-4.2	14.9	131.6	99.5	18.6	0.896	142.2W	
APR 8	16 32	19.5	-17-41-41.8	372.4	3533.0	1925.5	-3.3	-5.3	9.5	143.8	95.2	19.6	0.817	129.2W	
APR 9	17 31	26.2	-18-26-12.9	371.0	3546.0	1932.5	-2.4	-6.2	3.5	155.9	90.5	20.6	0.721	116.1W	
APR 10	18 30	55.7	-18-1-53.1	370.2	3553.7	1936.8	-1.3	-6.7	357.2	168.1	85.7	21.6	0.613	103.0W	
APR 11	19 29	54.4	-16-30 0.0	369.9	3556.7	1938.4	-0.2	-6.8	351.1	180.3	81.2	22.6	0.499	89.8W	
APR 12	20 27	41.2	-13-57-30.7	370.1	3554.8	1937.4	0.8	-6.4	345.6	192.5	77.3	23.6	0.385	76.6W	
APR 13	21 23	55.7	-10-35-40.5	370.8	3548.0	1933.7	1.9	-5.7	341.1	204.7	74.2	24.6	0.277	63.4W	
APR 14	22 18	38.2	-6-38-25.0	372.1	3535.9	1927.1	2.8	-4.6	337.8	216.9	71.9	25.6	0.182	50.3W	
APR 15	23 12	4.8	-2-20-53.6	374.0	3517.9	1917.3	3.6	-3.3	335.7	229.2	70.5	26.6	0.103	37.3W	
APR 16	0 4	39.1	2 1 33.2	376.5	3494.0	1904.2	4.2	-1.8	335.1	241.4	69.6	27.6	0.045	24.4W	
APR 17	0 56	46.1	6 14 12.4	379.7	3464.7	1888.2	4.6	-0.2	335.8	253.6	68.1	28.6	0.011	11.8W	
APR 18	1 48	45.5	10 3 40.4	383.5	3431.0	1869.9	4.7	1.4	337.8	265.8	310.0	0.0	0.000	1.2E	
APR 19	2 40	48.5	13 18 33.0	387.6	3394.8	1850.1	4.6	2.9	340.9	278.1	262.0	1.0	0.013	12.9E	
APR 20	3 32	55.4	15 50 1.3	391.8	3358.3	1830.3	4.3	4.2	345.0	290.3	263.2	2.0	0.046	24.8E	
APR 21	4 24	56.3	17 32 16.0	395.8	3324.2	1811.7	3.7	5.3	349.8	302.5	266.3	3.0	0.098	36.4E	
APR 22	5 16	34.5	18 22 34.1	399.3	3294.7	1795.6	2.8	6.1	355.0	314.8	270.0	4.0	0.164	47.7E	
APR 23	6 7	31.8	18 21 3.2	402.1	3272.1	1783.3	1.8	6.6	0.4	327.0	273.8	5.0	0.242	58.8E	
APR 24	6 57	34.1	17 30 8.0	403.8	3258.0	1775.6	0.6	6.8	5.6	339.2	277.6	6.0	0.328	69.8E	
APR 25	7 46	35.4	15 53 47.4	404.4	3253.5	1773.2	-0.6	6.8	10.6	351.4	281.2	7.0	0.420	80.6E	
APR 26	8 34	40.2	13 36 56.0	403.6	3259.4	1776.4	-1.9	6.4	15.0	3.6	284.3	8.0	0.514	91.5E	
APR 27	9 22	3.0	10 44 59.4	401.6	3275.7	1785.3	-3.1	5.8	18.8	15.8	287.0	9.0	0.609	102.5E	
APR 28	10 9	7.0	7 23 48.6	398.5	3301.8	1799.5	-4.2	4.9	21.8	28.0	289.0	10.0	0.701	113.6E	
APR 29	10 56	22.3	3 39 53.9	394.3	3336.3	1818.3	-5.0	3.7	23.8	40.2	290.5	11.0	0.787	124.9E	
APR 30	11 44	23.5	0-19-7.0	389.6	3377.2	1840.6	-5.6	2.4	24.8	52.4	291.4	12.0	0.864	136.6E	
MAY 1	12 33	47.1	-4-23-52.4	384.5	3421.9	1864.9	-5.9	0.9	24.7	64.6	292.0	13.0	0.927	148.6E	
MAY 2	13 25	8.2	-8-22-44.6	379.5	3467.0	1889.5	-5.8	-0.7	23.3	76.7	293.3	14.0	0.973	160.9E	
MAY 3	14 18	53.9	-12-1-41.5	375.0	3508.8	1912.3	-5.3	-2.2	20.5	88.9	304.3	15.0	0.997	173.4E	
MAY 4	15 15	15.6	-15-4-54.9	371.2	3544.1	1931.5	-4.5	-3.7	16.5	101.1	81.9	16.0	0.996	172.8W	
MAY 5	16 14	0.5	-17-16-35.8	368.5	3570.0	1945.6	-3.4	-5.0	11.3	113.3	89.7	17.0	0.969	159.7W	
MAY 6	17 14	26.4	-18-23-41.9	367.0	3585.2	1953.9	-2.2	-6.0	5.2	125.4	87.6	18.0	0.916	146.3W	
MAY 7	18 15	28.0	-18-18-55.2	366.5	3589.4	1956.2	-0.8	-6.5	358.8	137.6	83.7	19.0	0.841	132.8W	
MAY 8	19 15	53.8	-17-2-28.9	367.1	3583.8	1953.2	0.6	-6.7	352.5	149.8	79.6	20.0	0.746	119.4W	
MAY 9	20 14	46.4	-14-41-46.8	368.5	3570.2	1945.8	1.9	-6.4	346.8	162.0	75.8	21.0	0.639	106.0W	
MAY 10	21 11	35.7	-11-29-14.4	370.5	3550.7	1935.1	2.9	-5.8	342.0	174.2	72.6	22.0	0.525	92.8W	
MAY 11	22 6	20.7	-7-39-41.1	373.0	3527.1	1922.3	3.8	-4.8	338.4	186.4	70.2	23.0	0.412	79.7W	
MAY 12	22 59	21.2	-3-28-18.7	375.8	3500.9	1908.0	4.5	-3.5	336.1	198.6	68.6	24.0	0.305	66.9W	
MAY 13	23 51	8.7	0 50 22.3	378.8	3473.0	1892.8	4.9	-2.1	335.1	210.9	67.8	25.0	0.209	54.2W	
MAY 14	0 42	17.2	5 2 54.9	382.0	3443.9	1877.0	5.0	-0.5	335.4	223.1	67.5	26.0	0.128	41.8W	
MAY 15	1 33	16.6	8 57 0.6	385.4	3414.1	1860.7	5.0	1.0	337.1	235.3	67.3	27.0	0.065	29.6W	
MAY 16	2 24	27.7	12 21 37.6	388.8	3384.0	1844.3	4.8	2.5	339.8	247.6	65.4	28.0	0.024	17.6W	
MAY 17	3 15	59.3	15 7 21.9	392.3	3354.0	1828.0	4.4	3.8	343.6	259.8	48.2	29.0	0.003	6.4W	
MAY 18	4 7	46.4	17 6 59.2	395.6	3325.3	1812.3	3.8	4.9	348.2	272.1	291.6	0.5	0.004	7.0E	
MAY 19	4 59	32.5	18 15 57.0	398.8	3299.1	1798.0	3.0	5.8	353.3	284.3	277.9	1.5	0.024	17.9E	
MAY 20	5 50	54.4	18 32 41.9	401.5	3276.7	1785.8	2.1	6.4	358.6	296.5	278.0	2.5	0.063	29.0E	
MAY 21	6 41	29.1	17 58 32.2	403.6	3259.9	1776.6	1.0	6.7	4.0	308.8	280.2	3.5	0.117	39.9E	
MAY 22	7 31	0.4	16 37 3.6	404.8	3250.0	1771.2	-0.2	6.7	9.1	321.0	283.1	4.5	0.185	50.8E	
MAY 23	8 19	23.4	14 33 22.4	405.0	3248.4	1770.4	-1.5	6.4	13.7	333.2	285.8	5.5	0.264	61.7E	
MAY 24	9 6	45.7	11 53 20.7	404.0	3256.1	1774.6	-2.8	5.8	17.7	345.5	288.3	6.5	0.351	72.5E	
MAY 25	9 53	26.7	8 43 7.3	401.9	3273.9	1784.3	-4.0	5.0	20.9	357.7	290.3	7.5	0.444	83.5E	
MAY 26	10 39	55.4	5 9 1.2	398.5	3301.7	1799.4	-5.1	4.0	23.2	9.9	291.7	8.5	0.541	94.5E	
MAY 27	11 26	47.9	1 17 47.4	394.0	3338.9	1819.7	-6.0	2.7	24.6	22.1	292.6	9.5	0.638	105.9E	
MAY 28	12 14	45.2	-2-42-48.8	388.8	3384.2	1844.4	-6.6	1.3	24.9	34.3	292.9	10.5	0.732	117.5E	
MAY 29	13 4	30.3	-6-43-16.9	383.0	3435.2	1872.2	-6.9	-0.2	24.0	46.5	292.6	11.5	0.819	129.5E	
MAY 30	13 56	43.1	-10-31-37.7	377.2	3488.4	1901.2	-6.7	-1.7	21.8	58.7	292.0	12.5	0.894	142.0E	
MAY 31	14 51	52.8	-13-53-6.8	371.7	3539.6	1929.1	-6.0	-3.2	18.3	70.9	292.2	13.5	0.952	154.7E	
JUN 1	15 50	6.7	-16-30-59.4	367.1	3584.0	1953.2	-5.0	-4.5	13.5	83.1	298.6	14.5	0.989	167.7E	
JUN 2	16 50	59.0	-18-8-50.2	363.7	3617.1	1971.3	-3.5	-5.6	7.6	95.3	29.9	15.5	0.998	175.3W	
JUN 3	17 53	27.5	-18-34-16.9	361.9	3635.9	1981.5	-1.8	-6.3	1.1	107.5	73.9	16.5	0.980	163.5W	
JUN 4	18 56	5.7	-17-42-44.3	361.6	3638.7	1983.1	0.0	-6.6	354.5	119.6	75.6	17.5	0.933	149.9W	
JUN 5	19 57	29.1	-15-38-59.2	362.8	3626.5	1976.4	1.8	-6.4	348.3	131.8	73.5	18.5	0.861	136.1W	
JUN 6	20 56	39.8	-12-35-37.5	365.3	3601.8	1963.0	3.4	-5.8	343.1	144.0	71.0	19.5	0.769		

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		(h m s)							l	b	c					
JUL	1	18 29 41.1			-18-16-25.9	358.8	3667.3	1998.6	-2.1	-6.5	357.2	89.7	331.6	14.9	0.998	174.5E
JUL	2	19 33 3.6			-16-42-50.4	358.0	3675.5	2003.1	0.0	-6.4	350.7	101.9	58.7	15.9	0.987	167.1W
JUL	3	20 34 57.6			-13-59-10.0	359.0	3664.6	1997.2	2.1	-5.9	344.9	114.1	66.4	16.9	0.948	153.5W
JUL	4	21 34 28.6			-10-21-36.5	361.8	3636.7	1982.0	4.0	-5.0	340.3	126.3	66.7	17.9	0.881	139.6W
JUL	5	22 31 20.9			-6-9-57.9	365.9	3595.9	1959.7	5.5	-3.8	337.1	138.5	66.2	18.9	0.795	126.0W
JUL	6	23 25 50.0			-1-43-40.7	370.9	3547.2	1933.2	6.5	-2.3	335.4	150.7	66.1	19.9	0.694	112.7W
JUL	7	0 18 28.5			2 40 24.9	376.4	3495.5	1905.0	7.1	-0.8	335.1	162.9	66.5	20.9	0.587	99.9W
JUL	8	1 9 54.5			6 48 40.8	381.9	3444.8	1877.4	7.3	0.8	336.2	175.1	67.7	21.9	0.479	87.4W
JUL	9	2 0 43.1			10 30 21.1	387.2	3397.9	1851.8	7.2	2.2	338.4	187.3	69.4	22.9	0.374	75.3W
JUL	10	2 51 21.6			13 36 56.6	392.0	3356.5	1829.3	6.7	3.5	341.7	199.5	71.7	23.9	0.278	63.6W
JUL	11	3 42 5.4			16 1 48.2	396.1	3321.4	1810.1	6.0	4.7	345.9	211.8	74.2	24.9	0.194	52.1W
JUL	12	4 32 57.7			17 40 0.7	399.6	3292.7	1794.5	5.1	5.6	350.7	224.0	76.6	25.9	0.122	40.8W
JUL	13	5 23 49.5			18 28 32.9	402.3	3270.2	1782.3	4.1	6.2	355.9	236.3	78.2	26.9	0.067	29.8W
JUL	14	6 14 23.6			18 26 33.1	404.4	3253.5	1773.2	3.0	6.5	1.2	248.5	76.9	27.9	0.027	19.0W
JUL	15	7 4 20.3			17 35 27.3	405.8	3242.4	1767.1	1.8	6.6	6.4	260.8	62.6	28.9	0.006	8.9W
JUL	16	7 53 22.9			15 58 50.6	406.5	3236.6	1764.0	0.5	6.3	11.3	273.0	334.7	0.3	0.003	6.0E
JUL	17	8 41 23.2			13 42 1.2	406.5	3236.3	1763.8	-0.8	5.8	15.7	285.3	301.7	1.3	0.017	15.1E
JUL	18	9 28 23.6			10 51 26.4	405.9	3241.7	1766.7	-2.1	5.1	19.3	297.5	296.4	2.3	0.049	25.6E
JUL	19	10 14 37.6			7 34 9.4	404.4	3253.4	1773.1	-3.4	4.1	22.1	309.8	295.1	3.3	0.098	36.3E
JUL	20	11 0 28.4			3 57 29.5	402.1	3272.1	1783.3	-4.6	2.9	24.0	322.0	294.7	4.3	0.161	47.2E
JUL	21	11 46 27.1			0 8 56.5	398.9	3298.3	1797.6	-5.8	1.6	24.9	334.2	294.1	5.3	0.238	58.3E
JUL	22	12 33 11.2			-3-43-36.5	394.8	3332.4	1816.2	-6.7	0.2	24.7	346.5	293.2	6.3	0.327	69.6E
JUL	23	13 21 21.7			-7-31-27.1	389.9	3374.3	1839.0	-7.4	-1.2	23.4	358.7	291.8	7.3	0.425	81.2E
JUL	24	14 11 40.2			-11-4-28.4	384.3	3423.3	1865.7	-7.8	-2.6	20.9	10.9	289.6	8.3	0.528	93.1E
JUL	25	15 4 43.3			-14-10-39.6	378.3	3477.4	1895.2	-7.7	-3.9	17.3	23.1	286.9	9.3	0.634	105.4E
JUL	26	16 0 53.4			-16-36-5.0	372.3	3533.8	1925.9	-7.1	-5.1	12.4	35.3	283.5	10.3	0.737	118.1E
JUL	27	17 0 7.5			-18-5-57.1	366.7	3587.9	1955.4	-6.0	-6.0	6.6	47.5	280.0	11.3	0.831	131.3E
JUL	28	18 1 48.7			-18-27-9.7	362.0	3634.7	1980.9	-4.5	-6.5	0.1	59.7	277.0	12.3	0.910	144.9E
JUL	29	19 4 47.3			-17-32-0.8	358.6	3668.5	1999.3	-2.6	-6.5	353.5	71.9	276.7	13.3	0.966	158.8E
JUL	30	20 7 38.7			-15-21-31.1	357.0	3684.8	2008.2	-0.4	-6.2	347.3	84.1	294.4	14.3	0.995	172.1E
JUL	31	21 9 8.5			-12-6-15.4	357.4	3681.1	2006.2	1.7	-5.3	342.1	96.3	46.0	15.3	0.994	171.0W
AUG	1	22 8 32.0			-8-4-5.2	359.7	3657.8	1993.5	3.7	-4.1	338.2	108.5	61.7	16.3	0.962	157.6W
AUG	2	23 5 37.9			-3-36-2.0	363.6	3618.2	1971.9	5.4	-2.7	335.9	120.7	64.4	17.3	0.904	143.8W
AUG	3	0 0 40.4			0 57 33.7	368.8	3567.3	1944.1	6.6	-1.1	335.1	132.9	65.9	18.3	0.825	130.4W
AUG	4	0 54 6.8			5 19 24.1	374.8	3510.7	1913.3	7.4	0.6	335.7	145.1	67.5	19.3	0.731	117.4W
AUG	5	1 46 27.7			9 15 59.0	380.9	3453.7	1882.3	7.7	2.1	337.7	157.3	69.6	20.3	0.629	104.8W
AUG	6	2 38 9.6			12 37 21.2	386.9	3400.2	1853.1	7.6	3.5	340.8	169.5	72.2	21.3	0.525	92.7W
AUG	7	3 29 30.9			15 16 28.3	392.4	3353.0	1827.4	7.1	4.7	344.8	181.7	75.4	22.3	0.423	80.9W
AUG	8	4 20 40.2			17 8 39.6	397.0	3313.7	1806.0	6.4	5.6	349.5	193.9	78.8	23.3	0.326	69.5W
AUG	9	5 11 35.9			18 11 16.4	400.8	3282.8	1789.1	5.4	6.2	354.6	206.2	82.3	24.3	0.238	58.3W
AUG	10	6 2 9.2			18 23 34.6	403.5	3260.3	1776.9	4.3	6.6	359.9	218.4	85.5	25.3	0.162	47.3W
AUG	11	6 52 7.0			17 46 42.9	405.4	3245.6	1768.9	3.1	6.7	5.2	230.6	88.2	26.3	0.098	36.5W
AUG	12	7 41 17.5			16 23 37.5	406.3	3238.1	1764.8	1.8	6.5	10.2	242.9	89.5	27.3	0.050	25.7W
AUG	13	8 29 33.4			14 18 50.8	406.4	3237.0	1764.2	0.5	6.0	14.7	255.1	86.8	28.3	0.017	15.0W
AUG	14	9 16 55.0			11 38 12.1	405.9	3241.5	1766.6	-0.8	5.2	18.5	267.4	58.6	29.3	0.002	5.3W
AUG	15	10 3 31.3			8 28 27.8	404.6	3251.4	1772.0	-2.0	4.3	21.5	279.6	313.5	0.7	0.005	8.1E
AUG	16	10 49 39.5			4 57 3.1	402.8	3266.2	1780.1	-3.3	3.1	23.7	291.9	299.2	1.7	0.026	18.6E
AUG	17	11 35 43.8			1 11 51.2	400.4	3286.1	1790.9	-4.4	1.8	24.8	304.1	295.6	2.7	0.066	29.6E
AUG	18	12 22 14.1			-2-38-48.7	397.3	3311.3	1804.7	-5.4	0.4	24.9	316.3	293.6	3.7	0.122	40.8E
AUG	19	13 9 44.0			-6-26-3.9	393.7	3342.0	1821.4	-6.2	-1.1	23.8	328.6	291.6	4.7	0.195	52.2E
AUG	20	13 58 48.6			-10-0-14.2	389.4	3378.3	1841.2	-6.8	-2.5	21.7	340.8	289.2	5.7	0.281	63.9E
AUG	21	14 50 0.5			-13-10-35.8	384.7	3420.0	1863.9	-7.1	-3.8	18.4	353.0	286.3	6.7	0.379	75.8E
AUG	22	15 43 44.1			-15-45-17.5	379.6	3466.1	1889.0	-7.1	-5.0	14.0	5.2	282.8	7.7	0.485	88.1E
AUG	23	16 40 8.5			-17-31-47.6	374.3	3514.7	1915.5	-6.6	-5.9	8.6	17.4	278.7	8.7	0.595	100.8E
AUG	24	17 38 59.3			-18-18-12.5	369.3	3563.0	1941.8	-5.7	-6.5	2.5	29.6	274.3	9.7	0.703	113.8E
AUG	25	18 39 36.4			-17-55-33.5	364.8	3606.9	1965.7	-4.4	-6.7	356.1	41.8	270.0	10.7	0.803	127.2E
AUG	26	19 40 59.9			-16-20-30.1	361.3	3641.6	1984.6	-2.7	-6.5	349.8	54.0	266.4	11.7	0.889	141.0E
AUG	27	20 42 6.4			-13-37-19.4	359.2	3662.5	1996.1	-0.8	-5.8	344.2	66.2	264.6	12.7	0.953	154.9E
AUG	28	21 42 5.5			-9-58-4.1	358.9	3666.2	1998.1	1.2	-4.7	339.7	78.4	269.5	13.7	0.991	168.9E
AUG	29	22 40 30.4			-5-40-36.0	360.3	3651.5	1990.0	3.1	-3.3	336.7	90.6	33.0	14.7	0.999	175.6W
AUG	30	23 37 17.2			-1-5-25.2	363.5	3619.5	1972.6	4.7	-1.6	335.2	102.7	62.7	15.7	0.977	162.5W
AUG	31	0 32 37.9			3 27 29.0	368.1	3574.1	1947.9	6.0	0.1	335.3	114.9	66.9	16.7	0.929	149.0W
SEP	1	1 26 51.7			7 40 53.6	373.7	3520.3	1918.6	6.9	1.7	336.8	127.1	69.7	17.7	0.860	135.9W
SEP	2	2 20 16.9			11 21 25.5	379.9	3463.5									

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
OCT 1	3	45	57.4	15 43 29.5	385.8	3410.0	1858.5	6.4	5.3	346.3	133.1	80.7	18.0	0.823	130.2W
OCT 2	4	39	7.7	17 23 17.7	391.3	3362.4	1832.5	6.1	6.1	351.4	145.3	84.6	19.0	0.738	118.3W
OCT 3	5	31	30.1	18 9 12.3	396.1	3321.1	1810.0	5.5	6.6	356.8	157.5	88.7	20.0	0.646	106.8W
OCT 4	6	22	50.8	18 2 39.0	400.1	3288.4	1792.2	4.6	6.9	2.2	169.7	92.8	21.0	0.550	95.6W
OCT 5	7	13	0.9	17 7 3.7	402.9	3265.5	1779.7	3.5	6.8	7.5	181.8	96.7	22.0	0.454	84.6W
OCT 6	8	1	58.6	15 27 8.2	404.4	3252.9	1772.8	2.3	6.4	12.3	194.0	100.2	23.0	0.361	73.7W
OCT 7	8	49	50.9	13 8 17.9	404.8	3250.5	1771.5	0.9	5.7	16.5	206.2	103.3	24.0	0.273	62.8W
OCT 8	9	36	52.6	10 16 25.4	403.9	3257.5	1775.3	-0.4	4.9	20.0	218.5	105.9	25.0	0.193	52.0W
OCT 9	10	23	25.0	6 57 49.7	402.0	3272.7	1783.6	-1.6	3.7	22.6	230.7	108.0	26.0	0.123	41.0W
OCT 10	11	9	53.9	3 19 26.5	399.3	3294.6	1795.6	-2.7	2.5	24.3	242.9	109.6	27.0	0.067	29.8W
OCT 11	11	56	48.6	0-30-54.2	396.1	3321.4	1810.2	-3.6	1.0	25.0	255.1	111.1	28.0	0.026	18.5W
OCT 12	12	44	39.0	-4-24-10.8	392.6	3351.3	1826.5	-4.3	-0.5	24.5	267.3	115.9	29.0	0.004	7.0W
OCT 13	13	33	54.0	-8-9-59.4	389.0	3382.5	1843.5	-4.8	-1.9	22.9	279.5	123.9	0.4	0.002	5.0E
OCT 14	14	24	57.5	-11-36-38.7	385.4	3413.4	1860.3	-5.0	-3.4	20.1	291.7	128.0	1.4	0.022	17.0E
OCT 15	15	18	4.0	-14-31-36.9	382.1	3442.9	1876.4	-4.9	-4.6	16.1	304.0	134.6	2.4	0.064	29.3E
OCT 16	16	13	13.3	-16-42-28.3	379.1	3470.4	1891.3	-4.6	-5.7	11.2	316.2	141.2	3.4	0.127	41.7E
OCT 17	17	10	7.3	-17-58-18.8	376.4	3495.3	1905.0	-4.1	-6.4	5.5	328.4	147.4	4.4	0.209	54.4E
OCT 18	18	8	10.7	-18-11-24.1	374.0	3517.7	1917.1	-3.4	-6.7	359.3	340.6	153.4	5.4	0.307	67.2E
OCT 19	19	6	38.2	-17-18-35.3	371.9	3537.2	1927.8	-2.5	-6.7	353.2	352.8	158.5	6.4	0.415	80.1E
OCT 20	20	4	45.8	-15-21-59.2	370.3	3553.3	1936.6	-1.5	-6.3	347.5	358.3	163.3	7.4	0.529	93.2E
OCT 21	21	2	2.2	-12-28-43.4	369.0	3565.1	1943.0	-0.5	-5.4	342.5	363.1	167.7	8.4	0.642	106.4E
OCT 22	21	58	14.2	-8-49-59.4	368.4	3571.2	1946.3	0.6	-4.3	338.7	368.3	171.7	9.4	0.748	119.7E
OCT 23	22	53	25.8	-4-39-50.8	368.5	3570.1	1945.7	1.7	-2.8	336.2	373.1	176.1	10.4	0.841	133.0E
OCT 24	23	47	53.4	0-14-4.2	369.5	3560.4	1940.4	2.8	-1.2	335.1	377.9	180.1	11.4	0.916	146.3E
OCT 25	0	41	57.9	4 10 54.7	371.5	3541.5	1930.1	3.7	0.5	335.5	382.6	184.6	12.4	0.968	159.4E
OCT 26	1	35	58.1	8 19 6.9	374.4	3513.7	1914.9	4.5	2.1	337.2	387.1	189.1	13.4	0.995	172.3E
OCT 27	2	30	4.6	11 56 8.6	378.2	3478.3	1895.7	5.0	3.6	340.3	390.1	193.1	14.4	0.997	174.2W
OCT 28	3	24	16.1	14 50 19.4	382.7	3438.0	1873.7	5.3	4.8	344.4	392.2	196.9	15.4	0.976	162.0W
OCT 29	4	18	18.9	16 53 36.4	387.4	3395.8	1850.7	5.3	5.8	349.4	400.3	201.3	16.4	0.933	149.9W
OCT 30	5	11	50.5	18 1 59.4	392.2	3354.8	1828.3	5.0	6.4	354.8	405.3	206.3	17.4	0.873	138.1W
OCT 31	6	4	25.9	18 15 19.9	396.5	3318.1	1808.3	4.4	6.7	0.3	138.7	94.3	18.4	0.799	126.6W
NOV 1	6	55	44.5	17 36 35.4	400.1	3288.2	1792.1	3.6	6.7	5.7	150.8	98.0	19.4	0.716	115.4W
NOV 2	7	45	36.1	16 10 46.4	402.7	3267.0	1780.5	2.5	6.5	10.7	163.0	101.5	20.4	0.626	104.4W
NOV 3	8	34	2.6	14 3 55.9	404.1	3255.7	1774.4	1.2	5.9	15.2	175.2	104.7	21.4	0.532	93.5W
NOV 4	9	21	17.9	11 22 25.6	404.2	3255.0	1774.0	-0.1	5.1	18.9	187.3	107.4	22.4	0.438	82.7W
NOV 5	10	7	45.0	8 12 37.5	403.0	3264.7	1779.3	-1.4	4.0	21.9	199.5	109.6	23.4	0.346	71.9W
NOV 6	10	53	54.1	4 40 57.8	400.6	3284.2	1789.9	-2.6	2.8	23.9	211.7	111.2	24.4	0.258	60.9W
NOV 7	11	40	19.9	0 54 19.1	397.2	3312.2	1805.2	-3.7	1.4	24.9	223.9	112.4	25.4	0.178	49.7W
NOV 8	12	27	38.9	-2-59-28.4	393.1	3346.8	1824.0	-4.5	0.0	24.8	236.1	113.3	26.4	0.108	38.3W
NOV 9	13	16	27.5	-6-51-2.9	388.6	3385.4	1845.1	-5.0	-1.5	23.6	248.3	114.3	27.4	0.053	26.7W
NOV 10	14	7	17.3	-10-29-8.1	384.1	3425.3	1866.8	-5.2	-2.9	21.2	260.5	118.3	28.4	0.017	14.8W
NOV 11	15	0	30.1	-13-40-38.1	379.9	3463.6	1887.7	-5.0	-4.2	17.5	272.7	121.8	29.4	0.001	4.0W
NOV 12	15	56	10.2	-16-11-27.2	376.2	3497.4	1906.1	-4.5	-5.3	12.7	284.9	126.6	0.8	0.010	11.2E
NOV 13	16	53	58.3	-17-48-16.3	373.3	3524.8	1921.0	-3.7	-6.1	7.1	297.1	131.7	1.8	0.043	23.8E
NOV 14	17	53	10.9	-18-20-58.6	371.2	3544.5	1931.8	-2.7	-6.6	0.9	309.3	136.9	2.8	0.100	36.8E
NOV 15	18	52	47.8	-17-44-57.5	369.9	3556.4	1938.2	-1.6	-6.6	354.6	321.5	142.4	3.8	0.179	49.9E
NOV 16	19	51	49.2	-16-2-11.1	369.5	3560.9	1940.7	-0.5	-6.2	348.7	333.7	147.4	4.8	0.275	63.1E
NOV 17	20	49	31.4	-13-20-35.4	369.7	3559.2	1939.7	0.6	-5.5	343.5	345.9	152.4	5.8	0.382	76.2E
NOV 18	21	45	36.0	-9-52-15.2	370.4	3552.3	1936.0	1.6	-4.4	339.4	358.0	157.4	6.8	0.496	89.4E
NOV 19	22	40	8.7	-5-51-22.6	371.5	3541.1	1929.9	2.5	-3.0	336.7	363.1	162.4	7.8	0.609	102.4E
NOV 20	23	33	31.9	-1-32-49.1	373.1	3526.1	1921.7	3.2	-1.5	335.2	368.3	167.4	8.8	0.715	115.4E
NOV 21	0	26	16.1	2 48 42.4	375.1	3507.4	1911.6	3.8	0.1	335.2	373.1	172.4	9.8	0.810	128.2E
NOV 22	1	18	51.7	6 59 1.0	377.5	3485.0	1899.3	4.3	1.7	336.5	377.9	177.4	10.8	0.888	140.9E
NOV 23	2	11	42.0	10 44 48.1	380.4	3458.9	1885.1	4.6	3.2	339.1	382.6	182.4	11.8	0.947	153.3E
NOV 24	3	4	57.9	13 54 10.9	383.6	3429.4	1869.0	4.8	4.4	342.9	387.1	187.4	12.8	0.984	165.4E
NOV 25	3	58	35.1	16 17 31.4	387.2	3397.5	1851.6	4.8	5.4	347.5	391.1	191.4	13.8	0.998	175.4E
NOV 26	4	52	14.2	17 48 19.6	391.0	3364.6	1833.7	4.6	6.2	352.8	395.2	195.4	14.8	0.991	169.1W
NOV 27	5	45	26.0	18 23 50.0	394.8	3332.4	1816.2	4.1	6.6	358.3	400.3	200.3	15.8	0.964	157.9W
NOV 28	6	37	39.7	18 5 2.2	398.3	3303.1	1800.2	3.4	6.6	3.9	119.5	101.5	16.8	0.918	146.7W
NOV 29	7	28	31.2	16 56 1.4	401.3	3278.7	1786.9	2.5	6.4	9.1	131.6	103.7	17.8	0.858	135.6W
NOV 30	8	17	49.6	15 2 53.4	403.4	3261.3	1777.4	1.4	5.9	13.8	143.7	106.2	18.8	0.786	124.7W
DEC 1	9	5	38.6	12 32 37.3	404.5	3252.2	1772.5	0.1	5.1	17.8	155.9	108.5	19.8	0.704	113.9W
DEC 2	9	52	15.3	9 32 18.0	404.5	3252.9	1772.8	-1.2	4.2	21.0	168.0	110.5	20.8	0.615	103.1W
DEC 3	10	38	7.5	6 8 44.6	403.1	3263.9	1778.8	-2.6	3.0	23.3	180.2	112.0	21.8	0.522	92.3W
DEC 4	11	23	50.4	2 28 35.2	400.5	3285.4	1790.5	-3.9	1.7	24.6	192.4	112.9	22.8	0.427	

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (*)	Diam (*)	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")					l	b	c					
JAN 1	11 54 48.9	0 12 16.7		401.2	3279.4	1787.3	-4.8	0.5	25.0	172.8	113.5	21.3	0.604	101.9W
JAN 2	12 40 52.5	-3-35-47.8		397.4	3310.5	1804.2	-6.0	-0.9	24.6	185.0	113.0	22.3	0.509	90.8W
JAN 3	13 28 20.2	-7-19-46.4		392.6	3351.3	1826.4	-6.8	-2.3	23.1	197.1	112.0	23.3	0.410	79.5W
JAN 4	14 17 55.4	-10-50-16.8		386.9	3400.2	1853.1	-7.3	-3.6	20.5	209.3	110.3	24.3	0.313	67.8W
JAN 5	15 10 15.8	-13-55-52.0		380.8	3455.0	1883.0	-7.4	-4.8	16.7	221.5	108.1	25.3	0.220	55.8W
JAN 6	16 5 44.3	-16-22-56.4		374.6	3511.8	1913.9	-6.9	-5.7	11.8	233.6	105.7	26.3	0.137	43.3W
JAN 7	17 4 18.2	-17-56-48.8		368.9	3566.0	1943.5	-6.0	-6.3	6.0	245.8	103.8	27.3	0.069	30.4W
JAN 8	18 5 20.5	-18-24-17.3		364.2	3612.2	1968.6	-4.5	-6.5	359.5	258.0	106.0	28.3	0.022	17.2W
JAN 9	19 7 41.6	-17-37-21.8		360.9	3645.1	1986.6	-2.8	-6.3	353.0	270.2	145.2	29.3	0.002	5.5W
JAN 10	20 9 56.9	-15-36-28.7		359.4	3661.1	1995.3	-0.8	-5.7	346.9	282.4	237.0	0.8	0.011	12.3E
JAN 11	21 10 53.0	-12-31-16.5		359.6	3658.8	1994.0	1.1	-4.7	341.8	294.6	245.4	1.8	0.050	25.8E
JAN 12	22 9 46.3	-8-38-19.2		361.5	3639.3	1983.4	2.9	-3.3	338.0	306.8	246.3	2.8	0.115	39.6E
JAN 13	23 6 27.7	-4-17-13.7		364.8	3606.1	1965.3	4.4	-1.7	335.8	319.0	246.2	3.8	0.201	53.2E
JAN 14	0 1 14.1	0 12 50.1		369.2	3563.8	1942.3	5.5	-0.1	335.0	331.1	246.5	4.8	0.302	66.5E
JAN 15	0 54 36.0	4 35 9.5		374.1	3517.1	1916.8	6.3	1.5	335.8	343.3	247.5	5.8	0.410	79.5E
JAN 16	1 47 7.3	8 36 4.6		379.2	3469.9	1891.1	6.7	3.0	337.8	355.5	249.1	6.8	0.519	92.0E
JAN 17	2 39 16.9	12 4 44.8		384.1	3425.2	1866.7	6.7	4.3	341.0	7.6	251.3	7.8	0.624	104.3E
JAN 18	3 31 24.0	14 52 44.7		388.7	3384.7	1844.7	6.5	5.3	345.1	19.8	254.1	8.8	0.722	116.2E
JAN 19	4 23 35.1	16 53 49.8		392.8	3349.3	1825.4	6.1	6.1	350.0	31.9	257.0	9.8	0.807	127.8E
JAN 20	5 15 43.5	18 3 59.7		396.4	3319.1	1808.9	5.5	6.5	355.3	44.0	259.8	10.8	0.879	139.2E
JAN 21	6 7 32.2	18 21 40.9		399.4	3294.0	1795.2	4.7	6.6	0.8	56.2	261.8	11.8	0.935	150.4E
JAN 22	6 58 39.1	17 47 56.5		401.9	3273.7	1784.2	3.8	6.5	6.1	68.3	261.0	12.8	0.974	161.4E
JAN 23	7 48 44.0	16 26 18.4		403.8	3257.9	1775.5	2.7	6.0	11.2	80.4	247.3	13.8	0.995	171.7E
JAN 24	8 37 33.9	14 22 20.2		405.2	3246.6	1769.4	1.5	5.3	15.6	92.6	149.7	14.8	0.998	174.3W
JAN 25	9 25 6.5	11 42 56.9		406.1	3240.1	1765.9	0.2	4.3	19.3	104.7	120.3	15.8	0.983	164.8W
JAN 26	10 11 31.1	8 35 43.8		406.2	3239.0	1765.2	-1.2	3.2	22.1	116.8	115.8	16.8	0.950	154.2W
JAN 27	10 57 6.7	5 8 24.4		405.6	3244.0	1768.0	-2.6	1.9	24.0	129.0	114.5	17.8	0.903	143.5W
JAN 28	11 42 20.8	1 28 35.7		404.1	3256.0	1774.6	-4.0	0.6	24.9	141.1	113.7	18.8	0.840	132.7W
JAN 29	12 27 46.8	-2-16-11.6		401.6	3276.0	1785.4	-5.3	-0.8	24.8	153.3	112.8	19.8	0.765	121.8W
JAN 30	13 14 2.3	-5-58-16.3		398.1	3304.5	1801.0	-6.4	-2.2	23.7	165.4	111.5	20.8	0.679	110.8W
JAN 31	14 1 47.2	-9-29-19.0		393.7	3341.9	1821.3	-7.3	-3.5	21.4	177.6	109.6	21.8	0.584	99.5W
FEB 1	14 51 40.0	-12-39-51.0		388.4	3387.6	1846.2	-7.9	-4.6	18.1	189.7	107.1	22.8	0.483	87.9W
FEB 2	15 44 12.9	-15-18-51.0		382.4	3440.4	1875.0	-8.0	-5.6	13.8	201.9	104.0	23.8	0.380	75.9W
FEB 3	16 39 43.4	-17-13-51.3		376.1	3497.8	1906.3	-7.7	-6.3	8.4	214.1	100.3	24.8	0.278	63.5W
FEB 4	17 38 5.4	-18-12-3.0		370.0	3555.7	1937.9	-6.8	-6.6	2.4	226.3	96.4	25.8	0.184	50.6W
FEB 5	18 38 43.3	-18 -2-36.4		364.5	3609.1	1967.0	-5.5	-6.6	356.0	238.4	92.9	26.8	0.103	37.3W
FEB 6	19 40 35.2	-16-39-54.6		360.2	3652.1	1990.4	-3.8	-6.1	349.6	250.6	91.1	27.8	0.042	23.6W
FEB 7	20 42 28.7	-14 -6-21.9		357.6	3679.2	2005.1	-1.8	-5.2	344.0	262.8	98.6	28.8	0.007	9.8W
FEB 8	21 43 21.8	-10-33-7.7		356.9	3686.7	2009.2	0.3	-3.8	339.5	275.0	221.6	0.4	0.003	6.0E
FEB 9	22 42 38.0	-6-18 -9.6		358.1	3673.6	2002.1	2.4	-2.3	336.5	287.2	243.1	1.4	0.029	19.6E
FEB 10	23 40 8.1	-1-42-36.3		361.2	3642.1	1984.9	4.1	-0.5	335.1	299.4	246.0	2.4	0.083	33.5E
FEB 11	0 36 3.7	2 52 51.5		365.8	3596.7	1960.2	5.6	1.2	335.4	311.6	247.7	3.4	0.160	47.1E
FEB 12	1 30 46.5	7 10 27.8		371.3	3543.0	1930.9	6.6	2.8	337.1	323.8	249.7	4.4	0.254	60.4E
FEB 13	2 24 38.9	10 56 22.4		377.4	3486.5	1900.1	7.2	4.2	340.0	336.0	252.2	5.4	0.356	73.1E
FEB 14	3 17 58.2	14 0 39.6		383.4	3431.9	1870.4	7.4	5.3	344.0	348.1	255.3	6.4	0.462	85.5E
FEB 15	4 10 52.6	16 16 50.3		389.0	3382.2	1843.3	7.2	6.1	348.8	0.3	258.8	7.4	0.566	97.4E
FEB 16	5 3 20.7	17 41 20.8		394.0	3339.5	1820.0	6.7	6.6	354.0	12.5	262.6	8.4	0.664	109.0E
FEB 17	5 55 13.5	18 13 10.5		398.1	3304.6	1801.0	6.0	6.8	359.5	24.6	266.5	9.4	0.754	120.4E
FEB 18	6 46 17.7	17 53 34.0		401.4	3277.6	1786.3	5.0	6.6	4.9	36.8	270.1	10.4	0.832	131.5E
FEB 19	7 36 20.6	16 45 44.8		403.8	3258.1	1775.7	3.9	6.2	10.0	48.9	273.1	11.4	0.897	142.4E
FEB 20	8 25 14.2	14 54 34.7		405.4	3245.3	1768.7	2.7	5.5	14.6	61.1	275.2	12.4	0.947	153.3E
FEB 21	9 12 57.9	12 26 10.5		406.2	3238.7	1765.1	1.4	4.6	18.4	73.2	274.9	13.4	0.981	164.1E
FEB 22	9 59 39.1	9 27 29.9		406.4	3237.5	1764.5	0.0	3.5	21.5	85.4	261.0	14.4	0.998	174.6E
FEB 23	10 45 33.0	6 6 1.9		405.9	3241.5	1766.6	-1.4	2.2	23.6	97.5	127.2	15.4	0.997	173.7W
FEB 24	11 31 1.5	2 29 32.9		404.7	3250.6	1771.6	-2.7	0.8	24.8	109.6	115.2	16.4	0.978	163.0W
FEB 25	12 16 31.3	-1-13-59.3		403.0	3264.8	1779.3	-4.0	-0.6	24.9	121.8	112.4	17.4	0.942	152.1W
FEB 26	13 2 32.7	-4-56-24.1		400.5	3284.7	1790.2	-5.2	-2.0	24.0	133.9	110.6	18.4	0.890	141.1W
FEB 27	13 49 37.8	-8-29 -9.5		397.4	3310.8	1804.4	-6.2	-3.3	22.1	146.1	108.5	19.4	0.822	129.9W
FEB 28	14 38 18.4	-11-43 -9.5		393.5	3343.3	1822.1	-7.0	-4.5	19.1	158.2	106.0	20.4	0.740	118.5W
MAR 1	15 29 2.3	-14-28-33.4		389.0	3382.5	1843.5	-7.5	-5.5	15.1	170.4	102.8	21.4	0.646	106.9W
MAR 2	16 22 8.5	-16-34-48.0		383.8	3427.9	1868.2	-7.7	-6.3	10.1	182.6	99.1	22.4	0.544	94.9W
MAR 3	17 17 41.6	-17-51 -6.3		378.3	3478.1	1895.5	-7.5	-6.7	4.5	194.8	94.9	23.4	0.437	82.6W
MAR 4	18 15 26.6	-18 -7-39.8		372.7	3530.5	1924.1	-6.8	-6.8	358.4	206.9	90.4	24.4	0.329	69.9W
MAR 5	19 14 48.6	-17-17-32.8		367.3	3581.5	1951.9	-5.8	-6.4	352.2	219.1	85.9	25.4	0.226	56.7W
MAR 6	20 14 59.3	-15-18-55.5		362.8	3626.2	1976.3	-4.3	-5.7	346.4	231.3	81.9	26.4	0.176	43.1W
MAR 7	21 15 9.2	-12-16-44.2		359.5	3659.3	1994.3	-2.5	-4.5	341.4	243.5	78.8	27.4	0.064	29.2W
MAR 8	22 14 40.6	-8-22-59.4		357.9	3676.1	2003.5	-0.6	-3.0	337.7	255.7	77.8	28.4	0.017	15.1W
MAR 9	23 13 13.6	-3-55-22.5		358.1	3673.6	2002.1	1.3	-1.3	335.6	267.9	120.8	29.4	0.000	1.3W
MAR 10	0 10 45.8	0 45 22.7		360.3	3651.7	1990.2	3.2	0.5	335.1	280.1	248.2	0.9	0.014	13.3E
MAR 11	1 7 24.9	5 18 32.2		364.1	3613.1	1969.1	4.8	2.2	336.2	292.4	251.0	1.9	0.055	27.2E
MAR 12	2 3 21.7	9 25 54.6		369.3	3562.4	1941.5	6.0	3.8	338.7	304.6	253.4	2.9	0.121	40.6E
MAR 13	2 58 43.4	12 53 25.9		375.3	3505.5	1910.5	6.8	5.0	342.5	316.8	256.4	3.9	0.204	53.6E
MAR 14	3 53 29.6	15 31 41.2		381.6	3447.7	1879.0	7.2	6.0	347.2	329.0	260.0	4.9	0.299	66.2E
MAR 15	4 47 32.8	17 15 41.3		387.7	3393.3	1849.4	7.2	6.6	352.4	341.2	263.9	5.9	0.399	78.3E
MAR 16	5 40 40.1	18 4 13.6		393.2	3345.6	1823.4	6.7	6.8	358.0	353.3	268.1	6.9	0.501	89.9E
MAR 17	6 32 38.0	17 59 1.8		397.9	3306.4	1802.0	6.0	6.8	3.5	5.5	272.2	7.9	0.599	101.3E
MAR 18	7 23 16.5	17 3 56.6		401.5	3276.5	1785.7	5.0	6.4	8.7	17.7	276.1	8.9	0.692	112.4E
MAR 19	8 12 32.4	15 24 11.7		404.1	3256.0	1774.5	3.8	5.8	13.5	29.9	279.7	9.9	0.776	123.4E

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
APR 1	18	57	2.1	-17-39-29.7	374.5	3512.9	1914.5	-5.8	-6.6	354.0	188.0	84.6	22.9	0.481	87.7W
APR 2	19	55	3.8	-16-5-35.7	370.3	3552.9	1936.3	-4.9	-6.0	348.2	200.2	80.2	23.9	0.369	74.7W
APR 3	20	53	12.1	-13-30-17.3	366.6	3589.2	1956.1	-3.8	-4.9	343.1	212.4	76.2	24.9	0.262	61.4W
APR 4	21	51	1.9	-10-1-37.9	363.6	3618.0	1971.8	-2.4	-3.6	339.0	224.6	72.9	25.9	0.165	47.8W
APR 5	22	48	22.0	-5-52-35.1	361.9	3635.6	1981.4	-0.9	-2.0	336.3	236.8	70.1	26.9	0.086	34.0W
APR 6	23	45	14.2	-1-19-57.8	361.6	3638.7	1983.1	0.7	-0.3	335.1	249.1	67.3	27.9	0.031	20.1W
APR 7	0	41	48.5	3 17 10.6	362.9	3625.8	1976.1	2.3	1.5	335.5	261.3	57.0	28.9	0.003	6.4W
APR 8	1	38	15.1	7 39 34.0	365.7	3597.5	1960.6	3.8	3.1	337.4	273.5	266.6	0.5	0.005	7.7E
APR 9	2	34	38.6	11 29 50.5	369.9	3556.4	1938.2	5.0	4.5	340.7	285.7	261.0	1.5	0.034	21.0E
APR 10	3	30	53.2	14 34 21.0	375.2	3506.8	1911.2	5.9	5.6	345.2	298.0	262.4	2.5	0.086	34.1E
APR 11	4	26	41.6	16 44 15.4	381.0	3453.6	1882.2	6.4	6.4	350.4	310.2	265.5	3.5	0.158	46.7E
APR 12	5	21	39.4	17 55 46.7	386.8	3401.3	1853.7	6.4	6.8	356.0	322.4	269.3	4.5	0.242	58.9E
APR 13	6	15	21.0	18 9 35.4	392.3	3353.6	1827.7	6.1	6.8	1.7	334.6	273.4	5.5	0.335	70.6E
APR 14	7	7	27.2	17 29 40.2	397.1	3313.4	1805.8	5.4	6.5	7.2	346.8	277.4	6.5	0.432	82.1E
APR 15	7	57	49.7	16 1 59.8	400.8	3282.4	1788.9	4.4	5.9	12.1	359.0	281.1	7.5	0.529	93.2E
APR 16	8	46	32.3	13 53 26.5	403.4	3261.3	1777.4	3.3	5.1	16.4	11.2	284.4	8.5	0.624	104.2E
APR 17	9	33	49.6	11 11 4.1	404.8	3250.4	1771.5	1.9	4.0	19.9	23.4	287.2	9.5	0.713	115.1E
APR 18	10	20	4.4	8 1 50.8	404.9	3249.0	1770.7	0.5	2.8	22.6	35.6	289.6	10.5	0.794	125.9E
APR 19	11	5	45.1	4 32 43.2	404.0	3256.3	1774.7	-0.8	1.5	24.3	47.8	291.5	11.5	0.865	136.8E
APR 20	11	51	22.8	0 50 51.8	402.2	3271.0	1782.7	-2.1	0.1	25.0	59.9	293.3	12.5	0.923	147.7E
APR 21	12	37	30.2	-2-55-56.8	399.7	3291.6	1793.9	-3.3	-1.3	24.6	72.1	295.7	13.5	0.966	158.8E
APR 22	13	24	38.9	-6-39-1.4	396.7	3316.5	1807.5	-4.2	-2.7	23.2	84.3	303.6	14.5	0.992	169.9E
APR 23	14	13	17.1	-10-8-34.4	393.4	3344.3	1822.6	-4.9	-4.0	20.7	96.5	47.9	15.5	0.999	176.5W
APR 24	15	3	46.6	-13-13-48.0	390.0	3373.6	1838.6	-5.3	-5.1	17.1	108.6	90.1	16.5	0.985	166.0W
APR 25	15	56	17.9	-15-43-22.1	386.6	3403.4	1854.9	-5.5	-5.9	12.5	120.8	92.3	17.5	0.950	154.2W
APR 26	16	50	46.4	-17-26-20.8	383.2	3433.1	1871.0	-5.5	-6.5	7.2	133.0	90.4	18.5	0.895	142.1W
APR 27	17	46	50.9	-18-13-32.9	380.0	3462.1	1886.8	-5.2	-6.7	1.3	145.2	87.0	19.5	0.820	129.7W
APR 28	18	43	56.0	-17-58-59.3	377.0	3490.1	1902.1	-4.7	-6.5	355.3	157.4	83.0	20.5	0.729	117.2W
APR 29	19	41	20.4	-16-41-1.1	374.1	3516.8	1916.7	-4.1	-6.0	349.5	169.6	79.0	21.5	0.625	104.4W
APR 30	20	38	28.2	-14-22-45.5	371.5	3541.4	1930.1	-3.2	-5.1	344.3	181.8	75.2	22.5	0.514	91.4W
MAY 1	21	34	57.1	-11-11-46.9	369.3	3562.6	1941.6	-2.3	-3.9	340.0	194.0	71.9	23.5	0.400	78.3W
MAY 2	22	30	42.6	-7-19-19.8	367.6	3578.6	1950.3	-1.2	-2.4	337.0	206.2	69.3	24.5	0.290	65.0W
MAY 3	23	25	55.1	2-59-25.9	366.7	3587.5	1955.2	-0.1	-0.8	335.3	218.4	67.3	25.5	0.190	51.6W
MAY 4	0	20	54.5	1 31 56.8	366.8	3587.1	1955.0	1.1	0.9	335.2	230.6	65.8	26.5	0.107	38.2W
MAY 5	1	16	2.5	5 57 47.5	367.9	3576.1	1949.0	2.3	2.5	336.5	242.9	63.7	27.5	0.046	24.8W
MAY 6	2	11	34.7	10 1 12.0	370.2	3554.1	1937.0	3.4	4.0	339.3	255.1	55.7	28.5	0.011	11.8W
MAY 7	3	7	34.2	13 26 50.8	373.5	3522.1	1919.5	4.3	5.2	343.3	267.3	320.4	0.1	0.001	4.3E
MAY 8	4	3	47.8	16 2 35.4	377.8	3482.5	1897.9	5.0	6.0	348.2	279.6	276.0	1.1	0.018	15.3E
MAY 9	4	59	47.5	17 40 49.0	382.6	3438.4	1873.9	5.4	6.5	353.8	291.8	273.7	2.1	0.057	27.6E
MAY 10	5	54	56.7	18 19 1.1	387.7	3393.4	1849.4	5.5	6.7	359.6	304.1	275.7	3.1	0.116	39.7E
MAY 11	6	48	40.9	17 59 22.1	392.6	3351.0	1826.3	5.1	6.5	5.3	316.3	278.8	4.1	0.189	51.4E
MAY 12	7	40	36.5	16 47 27.7	397.0	3314.1	1806.2	4.5	5.9	10.5	328.5	282.1	5.1	0.273	62.9E
MAY 13	8	30	35.8	14 50 46.1	400.5	3285.0	1790.4	3.5	5.2	15.1	340.7	285.2	6.1	0.364	74.0E
MAY 14	9	18	47.1	12 17 18.0	402.9	3265.3	1779.6	2.3	4.2	18.9	353.0	288.0	7.1	0.458	85.0E
MAY 15	10	5	31.5	9 14 49.2	404.1	3255.8	1774.4	1.0	3.0	21.9	5.2	290.2	8.1	0.553	95.9E
MAY 16	10	51	19.1	5 50 35.8	404.0	3256.5	1774.8	-0.4	1.7	23.9	17.4	291.9	9.1	0.645	106.8E
MAY 17	11	36	45.1	2 11 35.4	402.7	3267.2	1780.6	-1.8	0.4	24.9	29.6	293.2	10.1	0.733	117.7E
MAY 18	12	22	27.5	-1-35-6.3	400.3	3286.7	1791.2	-3.0	-1.0	24.9	41.8	293.9	11.1	0.813	128.7E
MAY 19	13	9	4.6	-5-21-42.0	397.0	3313.6	1805.9	-4.0	-2.4	23.8	54.0	294.5	12.1	0.883	139.9E
MAY 20	13	57	12.5	-8-59-11.9	393.2	3345.9	1823.5	-4.8	-3.7	21.6	66.2	295.4	13.1	0.939	151.3E
MAY 21	14	47	21.1	-12-17-5.6	389.1	3381.4	1842.9	-5.2	-4.8	18.3	78.3	299.2	14.1	0.978	162.8E
MAY 22	15	39	49.0	-15-3-31.2	385.0	3417.6	1862.6	-5.3	-5.7	14.0	90.5	325.8	15.1	0.997	173.6E
MAY 23	16	34	37.0	-17-6-5.5	381.1	3452.3	1881.5	-5.1	-6.3	8.8	102.7	66.3	16.1	0.994	171.0W
MAY 24	17	31	23.8	-18-13-31.7	377.7	3483.4	1898.4	-4.6	-6.6	2.9	114.9	79.5	17.1	0.967	159.1W
MAY 25	18	29	27.0	-18-17-46.4	374.9	3509.5	1912.7	-3.9	-6.5	356.8	127.1	79.5	18.1	0.917	146.5W
MAY 26	19	27	52.2	-17-15-52.5	372.7	3530.0	1923.8	-3.1	-6.0	350.8	139.3	77.0	19.1	0.846	133.6W
MAY 27	20	25	47.8	-15-10-46.4	371.2	3544.6	1931.8	-2.2	-5.1	345.3	151.5	74.0	20.1	0.755	120.6W
MAY 28	21	22	39.3	-12-10-42.5	370.2	3553.7	1936.8	-1.2	-3.9	340.8	163.7	71.1	21.1	0.651	107.5W
MAY 29	22	18	15.4	-8-27-40.4	369.8	3557.6	1938.9	-0.3	-2.5	337.5	175.9	68.8	22.1	0.539	94.3W
MAY 30	23	12	46.0	-4-15-46.8	369.9	3556.6	1938.4	0.6	-0.9	335.6	188.1	67.2	23.1	0.424	81.2W
MAY 31	0	6	35.5	0 9 57.0	370.5	3550.6	1935.1	1.5	0.7	335.1	200.3	66.4	24.1	0.314	68.0W
JUN 1	1	0	14.4	4 34 16.0	371.7	3539.4	1928.9	2.4	2.3	336.0	212.6	66.2	25.1	0.214	54.9W
JUN 2	1	54	10.9	8 42 8.7	373.5	3522.5	1919.8	3.2	3.7	338.3	224.8	66.4	26.1	0.129	42.0W
JUN 3	2	48	43.0	12 19 21.3	375.9	3499.9	1907.5	3.8	4.9	341.8	237.0	66.1	27.1	0.064	29.2W
JUN 4	3	43	53.0	15 13 21.7	378.9	3471.9	1892.2	4.4	5.8	346.4	249.3	62.2	28.1	0.021	16.8W
JUN 5	4	39													

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JUL 1	3 29	6.6	14 23	37.2	381.1	3452.0	1881.4	5.0	5.7	345.1	219.2	71.6	25.7	0.152	45.8W
JUL 2	4 23	29.4	16 40	29.9	384.4	3422.3	1865.2	5.1	6.3	350.2	231.4	73.3	26.7	0.084	33.6W
JUL 3	5 18	2.0	18 2	38.1	387.8	3392.2	1848.7	5.1	6.6	355.8	243.7	73.0	27.7	0.036	21.7W
JUL 4	6 12	13.3	18 27	16.4	391.3	3362.2	1832.4	4.9	6.5	1.5	255.9	63.0	28.7	0.008	10.4W
JUL 5	7 5	27.5	17 55	37.0	394.7	3333.2	1816.6	4.5	6.1	7.1	268.2	337.2	0.2	0.002	5.3E
JUL 6	7 57	14.5	16 32	25.0	397.9	3306.4	1802.0	3.8	5.4	12.2	280.4	297.1	1.2	0.016	14.7E
JUL 7	8 47	17.0	14 24	55.9	400.7	3283.0	1789.2	2.8	4.4	16.6	292.7	292.5	2.2	0.049	25.6E
JUL 8	9 35	33.8	11 41	39.9	403.0	3264.7	1779.3	1.7	3.3	20.1	304.9	292.1	3.2	0.099	36.6E
JUL 9	10 22	18.5	8 31	17.8	404.5	3252.9	1772.8	0.4	2.0	22.7	317.2	292.6	4.2	0.163	47.4E
JUL 10	11 7	56.2	5 2	2.5	404.9	3248.9	1770.7	-1.0	0.7	24.3	329.4	293.1	5.2	0.238	58.3E
JUL 11	11 53	0.1	1 21	29.5	404.3	3254.0	1773.5	-2.4	-0.7	25.0	341.7	293.2	6.2	0.323	69.1E
JUL 12	12 38	8.8	-2-23	-10.4	402.5	3268.9	1781.6	-3.8	-2.0	24.6	353.9	292.8	7.2	0.415	80.0E
JUL 13	13 24	3.7	-6 -4	-42.2	399.4	3293.8	1795.1	-5.0	-3.3	23.2	6.1	291.9	8.2	0.510	91.0E
JUL 14	14 11	26.8	-9-35	-9.2	395.3	3328.3	1813.9	-5.9	-4.4	20.7	18.3	290.3	9.2	0.608	102.3E
JUL 15	15 0	57.0	-12-45	-17.4	390.3	3371.3	1837.4	-6.6	-5.4	17.2	30.5	288.2	10.2	0.703	113.9E
JUL 16	15 53	5.1	-15-24	-12.6	384.6	3420.7	1864.3	-6.8	-6.1	12.7	42.7	285.5	11.2	0.793	125.8E
JUL 17	16 48	5.3	-17-19	-35.9	378.8	3473.4	1893.0	-6.6	-6.6	7.4	54.9	282.7	12.2	0.873	138.1E
JUL 18	17 45	47.2	-18-18	-58.9	373.2	3525.3	1921.3	-5.9	-6.6	1.3	67.1	280.6	13.2	0.937	150.8E
JUL 19	18 45	31.2	-18-12	-10.1	368.3	3571.8	1946.6	-4.8	-6.3	355.0	79.3	282.3	14.2	0.980	163.8E
JUL 20	19 46	14.3	-16-54	-16.4	364.6	3608.4	1966.6	-3.4	-5.5	348.9	91.5	325.2	15.2	0.998	175.4E
JUL 21	20 46	47.4	-14-27	-59.7	362.3	3631.3	1979.1	-1.8	-4.4	343.5	103.7	59.2	16.2	0.988	167.6W
JUL 22	21 46	14.8	-11 -3	-47.5	361.6	3638.6	1983.0	-0.1	-2.9	339.3	115.9	66.0	17.2	0.950	154.1W
JUL 23	22 44	7.8	-6-57	-51.6	362.4	3630.4	1978.6	1.5	-1.3	336.4	128.1	66.7	18.2	0.885	140.3W
JUL 24	23 40	24.9	-2-29	-1.2	364.6	3608.9	1966.9	3.0	0.4	335.1	140.3	66.9	19.2	0.799	126.6W
JUL 25	0 35	24.5	2 4	4.8	367.8	3577.5	1949.7	4.2	2.1	335.4	152.5	67.5	20.2	0.698	113.1W
JUL 26	1 29	34.4	6 24	41.9	371.7	3539.9	1929.2	5.1	3.6	337.1	164.7	68.9	21.2	0.588	99.9W
JUL 27	2 23	22.5	10 18	41.5	375.9	3499.6	1907.3	5.8	4.8	340.1	176.9	71.0	22.2	0.476	87.1W
JUL 28	3 17	9.2	13 34	37.6	380.3	3459.4	1885.4	6.2	5.8	344.1	189.1	73.7	23.2	0.368	74.5W
JUL 29	4 11	2.6	16 3	45.3	384.6	3421.1	1864.5	6.3	6.4	349.0	201.4	76.9	24.2	0.268	62.2W
JUL 30	5 4	56.8	17 40	7.0	388.6	3385.6	1845.2	6.2	6.7	354.4	213.6	80.3	25.2	0.181	50.2W
JUL 31	5 58	32.9	18 20	48.0	392.3	3353.5	1827.7	5.9	6.6	0.1	225.8	83.4	26.2	0.109	38.5W
AUG 1	6 51	25.0	18 6	6.2	395.7	3324.9	1812.1	5.3	6.2	5.7	238.1	85.6	27.2	0.055	26.9W
AUG 2	7 43	7.2	16 59	24.5	398.7	3300.0	1798.5	4.6	5.6	10.8	250.3	84.6	28.2	0.019	15.7W
AUG 3	8 33	21.3	15 6	37.1	401.3	3278.7	1786.9	3.6	4.6	15.4	262.6	61.5	29.2	0.002	5.2W
AUG 4	9 22	0.2	12 35	19.5	403.4	3261.5	1777.5	2.5	3.5	19.2	274.8	308.1	0.7	0.005	7.7E
AUG 5	10 9	9.9	9 33	54.4	404.9	3249.0	1770.7	1.2	2.3	22.1	287.1	295.8	1.7	0.025	18.3E
AUG 6	10 55	7.3	6 10	49.6	405.8	3242.1	1767.0	-0.1	0.9	24.0	299.3	293.7	2.7	0.063	29.1E
AUG 7	11 40	17.7	2 34	12.9	405.8	3241.7	1766.7	-1.6	-0.5	24.9	311.6	292.9	3.7	0.117	39.9E
AUG 8	12 25	12.9	-1 -8	-12.9	405.0	3248.8	1770.6	-3.0	-1.8	24.8	323.8	292.1	4.7	0.185	50.8E
AUG 9	13 10	28.6	-4-49	-0.2	403.0	3264.4	1779.1	-4.4	-3.1	23.7	336.0	291.0	5.7	0.264	61.7E
AUG 10	13 56	42.4	-8-20	-34.0	400.0	3289.0	1792.5	-5.6	-4.3	21.6	348.3	289.3	6.7	0.352	72.7E
AUG 11	14 44	32.0	-11-34	-43.0	395.9	3323.0	1811.0	-6.5	-5.3	18.5	0.5	287.0	7.7	0.448	83.9E
AUG 12	15 34	31.6	-14-22	-13.8	390.9	3365.9	1834.4	-7.2	-6.1	14.4	12.7	284.1	8.7	0.549	95.5E
AUG 13	16 27	5.8	-16-32	-38.8	385.1	3416.5	1862.0	-7.4	-6.6	9.4	24.9	280.7	9.7	0.650	107.3E
AUG 14	17 22	23.8	-17-54	-39.6	378.9	3472.3	1892.4	-7.2	-6.8	3.8	37.1	276.7	10.7	0.748	119.6E
AUG 15	18 20	11.3	-18-17	-25.6	372.7	3529.6	1923.6	-6.6	-6.6	357.6	49.3	272.6	11.7	0.838	132.4E
AUG 16	19 19	50.0	-17-32	-50.7	367.1	3583.7	1953.1	-5.5	-5.9	351.5	61.5	268.9	12.7	0.913	145.6E
AUG 17	20 20	23.5	-15-38	-16.7	362.5	3629.2	1977.9	-4.0	-4.9	345.7	73.7	266.8	13.7	0.968	159.2E
AUG 18	21 20	53.0	-12-38	-33.1	359.4	3660.7	1995.1	-2.2	-3.5	340.9	85.9	275.0	14.7	0.996	173.0E
AUG 19	22 20	33.0	-8-46	-6.0	358.1	3674.4	2002.5	-0.3	-1.9	337.4	98.1	58.2	15.7	0.995	172.2W
AUG 20	23 19	0.9	-4-19	-4.4	358.6	3668.9	1999.5	1.6	-0.1	335.4	110.2	66.7	16.7	0.964	158.1W
AUG 21	0 16	15.8	0 21	47.1	360.9	3645.4	1986.8	3.4	1.6	335.1	122.4	68.4	17.7	0.905	144.1W
AUG 22	1 12	30.9	4 56	12.5	364.7	3607.8	1966.2	4.9	3.3	336.4	134.6	69.9	18.7	0.824	130.3W
AUG 23	2 8	4.8	9 6	36.1	369.5	3560.8	1940.6	6.1	4.6	339.1	146.8	72.1	19.7	0.727	116.9W
AUG 24	3 3	12.5	12 39	7.1	374.9	3509.5	1912.7	6.9	5.7	343.0	159.0	74.9	20.7	0.621	103.8W
AUG 25	3 58	1.0	15 23	54.2	380.4	3458.3	1884.8	7.3	6.4	347.8	171.2	78.4	21.7	0.512	91.2W
AUG 26	4 52	26.3	17 14	56.2	385.8	3410.3	1858.6	7.4	6.8	353.2	183.4	82.3	22.7	0.406	79.0W
AUG 27	5 46	15.1	18 9	42.2	390.7	3367.5	1835.3	7.2	6.8	358.8	195.6	86.4	23.7	0.307	67.1W
AUG 28	6 39	8.9	18 8	50.2	395.0	3330.8	1815.3	6.7	6.4	4.4	207.9	90.5	24.7	0.218	55.5W
AUG 29	7 30	49.4	17 15	38.6	398.6	3300.6	1798.9	5.9	5.8	9.7	220.1	94.2	25.7	0.142	44.3W
AUG 30	8 21	3.8	15 35	31.7	401.5	3276.7	1785.8	4.9	4.9	14.4	232.3	97.4	26.7	0.081	33.0W
AUG 31	9 9	48.3	13 15	21.5	403.7	3258.7	1776.0	3.7	3.8	18.4	244.6	99.7	27.7	0.036	21.9W
SEP 1	9 57	8.4	10 22	50.9	405.3	3246.1	1769.1	2.4	2.6	21.5	256.8	99.8	28.7	0.009	11.0W
SEP 2	10 43	18.7	7 6	4.8	406.2	3238.8	1765.1	1.1	1.2	23.6	269.0	18.6	0.0	0.000	0.9W
SEP 3	11 28	40.5	3 33	10.7	406.5	3236.7	1764.0	-0.4	-0.2	24.8	281.3	292.4	1.0	0.009	10.

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (")	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		(h	m	s)					l	b	c					
OCT 1	1	12	2	19.9	0 47 29.2	406.0	3240.7	1766.2	-0.5	-1.3	25.0	262.8	120.6	29.0	0.005	7.7W
OCT 2	2	12	47	31.2	-2-55-30.1	405.0	3248.8	1770.6	-1.9	-2.6	24.4	275.1	261.2	0.3	0.001	3.8E
OCT 3	3	13	33	17.3	-6-33-3.4	403.3	3261.8	1777.7	-3.1	-3.9	22.7	287.3	279.9	1.3	0.016	14.5E
OCT 4	4	14	20	5.5	-9-56-36.6	401.2	3279.6	1787.4	-4.3	-4.9	20.1	299.5	281.0	2.3	0.049	25.5E
OCT 5	5	15	8	19.9	-12-57-13.6	398.4	3302.4	1799.8	-5.2	-5.8	16.6	311.7	279.7	3.3	0.100	36.7E
OCT 6	6	15	58	18.4	-15-25-43.8	395.0	3330.6	1815.2	-6.0	-6.4	12.2	323.9	277.2	4.3	0.167	48.1E
OCT 7	7	16	50	9.7	-17-12-59.7	391.1	3364.3	1833.5	-6.5	-6.8	7.0	336.2	273.8	5.3	0.248	59.7E
OCT 8	8	17	43	50.9	-18-10-31.8	386.6	3403.5	1854.9	-6.8	-6.7	1.4	348.4	269.9	6.3	0.342	71.5E
OCT 9	9	18	39	6.8	-18-11-20.2	381.6	3447.7	1879.0	-6.8	-6.4	355.6	0.5	265.6	7.3	0.446	83.6E
OCT 10	10	19	35	32.1	-17-10-59.5	376.4	3495.3	1905.0	-6.4	-5.7	349.8	12.7	261.2	8.3	0.554	96.1E
OCT 11	11	20	32	37.9	-15-8-45.3	371.2	3544.0	1931.5	-5.7	-4.6	344.6	24.9	257.0	9.3	0.663	108.9E
OCT 12	12	21	29	59.1	-12-8-26.1	366.5	3590.0	1956.5	-4.7	-3.2	340.2	37.1	253.2	10.3	0.767	122.2E
OCT 13	13	22	27	20.5	-8-18-50.7	362.6	3628.8	1977.7	-3.3	-1.6	337.1	49.2	249.9	11.3	0.859	135.8E
OCT 14	14	23	24	39.0	-3-53-40.9	359.9	3655.5	1992.3	-1.7	0.1	335.3	61.4	246.7	12.3	0.932	149.7E
OCT 15	0	22	1	2	0 49 16.9	358.9	3666.1	1998.0	0.2	1.9	335.2	73.6	241.8	13.3	0.980	163.6E
OCT 16	1	19	37	2	5 29 45.8	359.6	3658.4	1993.8	2.0	3.5	336.7	85.7	197.5	14.3	0.999	176.5E
OCT 17	2	17	32	8	9 47 16.0	362.2	3632.6	1979.7	3.8	4.9	339.8	97.9	88.2	15.3	0.989	167.7W
OCT 18	3	15	43	1	13 23 39.8	366.3	3591.6	1957.4	5.4	5.9	344.1	110.0	84.2	16.3	0.950	154.1W
OCT 19	4	13	48	2	16 5 29.3	371.6	3540.2	1929.4	6.5	6.5	349.4	122.2	85.9	17.3	0.889	140.9W
OCT 20	5	11	15	7	17 45 16.3	377.7	3483.8	1898.6	7.3	6.7	355.2	134.3	89.2	18.3	0.809	128.1W
OCT 21	6	7	28	4	18 21 36.8	383.9	3427.4	1867.9	7.6	6.6	1.1	146.5	93.2	19.3	0.718	115.7W
OCT 22	7	1	54	4	17 58 4.1	389.8	3375.3	1839.6	7.4	6.0	6.8	158.7	97.3	20.3	0.621	103.8W
OCT 23	7	54	14	9	16 41 25.4	395.0	3330.4	1815.1	6.8	5.3	12.0	170.8	101.2	21.3	0.521	92.3W
OCT 24	8	44	27	0	14 39 57.9	399.4	3294.4	1795.5	5.9	4.2	16.4	183.0	104.7	22.3	0.423	81.0W
OCT 25	9	32	42	8	12 2 14.6	402.6	3268.1	1781.1	4.7	3.1	20.0	195.2	107.7	23.3	0.330	70.0W
OCT 26	10	19	24	7	8 56 26.2	404.6	3251.6	1772.1	3.4	1.8	22.6	207.4	110.3	24.3	0.245	59.2W
OCT 27	11	5	2	0	5 30 14.1	405.5	3244.2	1768.1	1.9	0.4	24.3	219.6	112.4	25.3	0.169	48.4W
OCT 28	11	50	7	5	1 51 3.0	405.4	3245.1	1768.6	0.5	-1.0	25.0	231.8	114.3	26.3	0.104	37.6W
OCT 29	12	35	14	9	-1-53-38.5	404.4	3253.1	1773.0	-0.9	-2.3	24.6	244.0	116.6	27.3	0.054	26.8W
OCT 30	13	20	56	9	-5-35-56.1	402.7	3267.0	1780.5	-2.1	-3.6	23.2	256.2	121.4	28.3	0.020	16.0W
OCT 31	14	7	43	5	-9-7-14.4	400.4	3285.5	1790.6	-3.2	-4.7	20.9	268.4	146.9	29.3	0.003	5.9W
NOV 1	14	55	59	5	-12-18-12.8	397.8	3307.6	1802.6	-4.1	-5.6	17.5	280.6	253.9	0.6	0.005	7.8E
NOV 2	15	46	1	5	-14-58-57.9	394.8	3332.6	1816.3	-4.8	-6.2	13.3	292.8	268.4	1.6	0.026	18.7E
NOV 3	16	37	54	2	-16-59-36.4	391.6	3360.0	1831.2	-5.2	-6.6	8.2	305.0	269.3	2.6	0.068	30.1E
NOV 4	17	31	28	7	-18-11-8.5	388.1	3389.5	1847.3	-5.5	-6.6	2.7	317.2	267.1	3.6	0.128	41.9E
NOV 5	18	26	22	3	-18-26-34.2	384.6	3421.2	1864.5	-5.6	-6.3	356.9	329.4	263.8	4.6	0.206	53.8E
NOV 6	19	22	3	8	-17-41-57.2	380.8	3454.7	1882.8	-5.4	-5.7	351.1	341.6	260.0	5.6	0.298	66.0E
NOV 7	20	18	1	2	-15-57-8.3	377.0	3489.6	1901.8	-5.1	-4.7	345.9	353.8	256.2	6.6	0.401	78.5E
NOV 8	21	13	50	3	-13-15-57.8	373.3	3524.7	1921.0	-4.5	-3.4	341.3	6.0	252.7	7.6	0.512	91.2E
NOV 9	22	9	21	0	-9-46-3.9	369.8	3558.2	1939.2	-3.7	-1.9	337.9	18.1	249.7	8.6	0.624	104.2E
NOV 10	23	4	38	2	-5-38-29.2	366.7	3587.3	1955.1	-2.7	-0.3	335.8	30.3	247.4	9.6	0.731	117.5E
NOV 11	23	59	58	7	-1-7-17.3	364.5	3609.0	1966.9	-1.4	1.4	335.1	42.4	245.7	10.6	0.828	130.9E
NOV 12	0	55	45	1	3 30 55.3	363.5	3619.8	1972.8	0.0	3.0	335.9	54.6	244.1	11.6	0.907	144.5E
NOV 13	1	52	17	5	7 57 49.9	363.7	3617.4	1971.5	1.5	4.4	338.3	66.7	241.1	12.6	0.964	158.0E
NOV 14	2	49	45	0	11 54 53.6	365.4	3600.6	1962.3	3.1	5.5	342.1	78.9	225.5	13.6	0.994	170.9E
NOV 15	3	47	58	2	15 5 28.4	368.5	3570.2	1945.7	4.4	6.2	347.0	91.0	118.3	14.6	0.996	172.7E
NOV 16	4	46	26	5	17 17 13.0	372.8	3528.9	1923.2	5.6	6.6	352.7	103.1	97.3	15.6	0.972	160.6W
NOV 17	5	44	23	3	18 23 50.4	378.0	3480.6	1896.9	6.3	6.5	358.7	115.3	96.5	16.6	0.925	148.0W
NOV 18	6	40	57	8	18 25 32.4	383.6	3429.7	1869.2	6.6	6.1	4.7	127.4	98.9	17.6	0.859	135.7W
NOV 19	7	35	30	0	17 27 50.9	389.2	3380.5	1842.4	6.5	5.3	10.2	139.6	102.0	18.6	0.779	123.8W
NOV 20	8	27	39	2	15 39 32.2	394.3	3336.5	1818.4	5.9	4.4	15.0	151.7	105.2	19.6	0.690	112.3W
NOV 21	9	17	26	3	13 10 30.2	398.6	3300.3	1798.7	5.0	3.2	19.0	163.9	108.1	20.6	0.597	101.0W
NOV 22	10	5	9	9	10 10 20.0	401.9	3273.5	1784.1	3.9	1.9	21.9	176.0	110.4	21.6	0.501	90.0W
NOV 23	10	51	20	1	6 47 39.6	403.9	3257.1	1775.1	2.5	0.6	23.9	188.2	112.2	22.6	0.407	79.1W
NOV 24	11	36	33	8	3 10 11.9	404.7	3251.0	1771.8	1.1	-0.8	24.9	200.4	113.5	23.6	0.317	68.4W
NOV 25	12	31	30	5	0-34-51.9	404.2	3254.8	1773.9	-0.3	-2.1	24.8	212.5	114.4	24.6	0.233	57.6W
NOV 26	13	6	49	9	-4-20-17.7	402.7	3267.4	1780.8	-1.6	-3.4	23.8	224.7	114.8	25.6	0.158	46.7W
NOV 27	13	53	9	6	-7-58-15.1	400.2	3287.5	1791.7	-2.7	-4.5	21.7	236.9	115.3	26.6	0.095	35.8W
NOV 28	14	41	2	5	-11-19-51.8	397.1	3313.2	1805.7	-3.6	-5.4	18.6	249.1	116.7	27.6	0.046	24.7W
NOV 29	15	30	53	1	-14-15-6.9	393.6	3342.7	1821.8	-4.3	-6.1	14.6	261.3	123.5	28.6	0.014	13.7W
NOV 30	16	22	52	2	-16-33-13.2	389.9	3374.0	1838.8	-4.6	-6.5	9.7	273.5	176.7	29.6	0.002	5.1W
DEC 1	17	16	53	1	-18-3-37.3	386.4	3405.3	1855.9	-4.8	-6.5	4.2	285.7	250.0	0.9	0.011	12.0E
DEC 2	18	12	29	3												

Date (0 DT)	RA [Mean]			Dec	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong	
	(h	m	s)					(d	'	"						l
JAN 1	20	46	38.2	-15	-7-18.5	371.4	3542.2	1930.5	-2.9	-3.6	343.4	302.7	249.9	2.3	0.066	29.7E
JAN 2	21	43	33.9	-11	-58-47.0	369.9	3556.5	1938.3	-2.0	-2.1	339.3	314.9	249.0	3.3	0.134	42.8E
JAN 3	22	39	16.4	-8	-7-38.7	369.3	3562.7	1941.7	-1.0	-0.5	336.6	327.0	247.8	4.3	0.221	55.9E
JAN 4	23	33	51.3	-3	-48-58.2	369.4	3561.8	1941.2	0.0	1.1	335.2	339.2	247.1	5.3	0.323	69.1E
JAN 5	0	27	42.0	0	41 27.3	370.1	3555.2	1937.6	0.9	2.7	335.3	351.4	247.0	6.3	0.433	82.2E
JAN 6	1	21	20.7	5	8 6.8	371.2	3544.0	1931.5	1.8	4.1	336.9	3.5	247.8	7.3	0.547	95.3E
JAN 7	2	15	19.8	9	16 11.2	372.8	3529.1	1923.3	2.6	5.2	339.7	15.7	249.3	8.3	0.657	108.2E
JAN 8	3	10	2.9	12	51 50.0	374.7	3510.9	1913.4	3.4	6.1	343.7	27.8	251.5	9.3	0.759	121.0E
JAN 9	4	5	38.2	15	42 42.8	377.0	3489.5	1901.8	4.1	6.5	348.7	40.0	254.2	10.3	0.846	133.7E
JAN 10	5	1	53.7	17	38 57.1	379.7	3464.9	1888.4	4.6	6.6	354.3	52.1	256.6	11.3	0.916	146.2E
JAN 11	5	58	17.1	18	34 24.0	382.8	3437.2	1873.3	4.9	6.3	0.3	64.2	257.3	12.3	0.965	158.5E
JAN 12	6	54	3.8	18	27 39.0	386.2	3407.0	1856.8	5.0	5.7	6.1	76.3	248.9	13.3	0.993	170.3E
JAN 13	7	48	29.3	17	22 10.7	389.8	3375.3	1839.5	4.9	4.8	11.5	88.5	148.8	14.3	0.998	175.1W
JAN 14	8	41	0.7	15	25 26.1	393.5	3343.5	1822.2	4.4	3.6	16.2	100.6	115.2	15.3	0.983	164.8W
JAN 15	9	31	24.2	12	47 13.9	397.0	3313.7	1806.0	3.7	2.3	19.9	112.7	112.1	16.3	0.948	153.5W
JAN 16	10	19	45.1	9	38 4.4	400.2	3287.7	1791.8	2.7	1.0	22.7	124.9	112.1	17.3	0.896	142.4W
JAN 17	11	6	24.0	6	7 58.5	402.6	3267.5	1780.8	1.5	-0.4	24.3	137.0	112.4	18.3	0.831	131.4W
JAN 18	11	51	52.0	2	25 54.8	404.2	3255.0	1774.0	0.2	-1.8	24.9	149.1	112.6	19.3	0.755	120.5W
JAN 19	12	36	46.4	-1	-20-10.1	404.6	3251.5	1772.1	-1.2	-3.1	24.5	161.3	112.3	20.3	0.670	109.7W
JAN 20	13	21	47.7	-5	-2-59.7	403.8	3258.0	1775.6	-2.6	-4.3	23.2	173.4	111.4	21.3	0.579	98.9W
JAN 21	14	7	37.1	-8	-35-23.6	401.7	3275.0	1784.9	-3.9	-5.3	20.8	185.6	109.9	22.3	0.484	88.0W
JAN 22	14	54	54.4	-11	-49-39.3	398.4	3302.3	1799.7	-4.9	-6.0	17.5	197.8	107.8	23.3	0.389	77.0W
JAN 23	15	44	14.3	-14	-37 -2.2	394.0	3338.9	1819.7	-5.7	-6.5	13.3	209.9	105.2	24.3	0.295	65.7W
JAN 24	16	36	0.7	-16	-47-34.1	388.9	3383.1	1843.8	-6.2	-6.7	8.3	222.1	102.0	25.3	0.208	54.1W
JAN 25	17	30	20.9	-18	-10-30.1	383.3	3432.1	1870.5	-6.2	-6.6	2.7	234.3	98.6	26.3	0.130	42.1W
JAN 26	18	26	58.9	-18	-35-39.0	377.8	3482.4	1897.9	-5.9	-6.1	356.7	246.5	95.6	27.3	0.066	29.7W
JAN 27	19	25	15.1	-17	-55-35.0	372.7	3529.8	1923.7	-5.2	-5.3	350.7	258.7	94.9	28.3	0.022	17.0W
JAN 28	20	24	14.7	-16	-8 -3.6	368.6	3569.8	1945.5	-4.2	-4.1	345.2	270.9	119.0	29.3	0.002	4.6W
JAN 29	21	23	2.3	-13	-17-36.0	365.6	3598.6	1961.2	-2.9	-2.6	340.7	283.1	241.3	0.7	0.008	10.3E
JAN 30	22	20	57.7	-9	-35-19.9	364.0	3614.0	1969.6	-1.5	-0.9	337.3	295.2	247.3	1.7	0.042	23.7E
JAN 31	23	17	44.1	-5	-17-13.3	363.9	3615.3	1970.3	-0.1	0.8	335.5	307.4	247.9	2.7	0.103	37.3E
FEB 1	0	13	26.9	0	-41-31.6	365.1	3603.8	1964.1	1.3	2.5	335.2	319.6	248.2	3.7	0.186	50.9E
FEB 2	1	8	26.3	3	53 29.9	367.3	3582.1	1952.3	2.6	4.0	336.4	331.8	249.1	4.7	0.285	64.4E
FEB 3	2	3	8.7	8	11 7.1	370.2	3553.5	1936.6	3.6	5.2	339.0	344.0	250.9	5.7	0.394	77.6E
FEB 4	2	57	57.3	11	56 52.4	373.7	3520.9	1918.9	4.5	6.1	342.8	356.1	253.4	6.7	0.506	90.6E
FEB 5	3	53	5.3	14	58 55.4	377.3	3487.0	1900.4	5.2	6.6	347.6	8.3	256.7	7.7	0.616	103.3E
FEB 6	4	48	31.1	17	8 21.2	381.0	3453.3	1882.0	5.6	6.8	353.0	20.5	260.4	8.7	0.718	115.8E
FEB 7	5	43	57.3	18	19 35.5	384.6	3420.8	1864.3	5.7	6.5	358.8	32.6	264.4	9.7	0.809	128.0E
FEB 8	6	38	54.6	18	30 49.7	388.1	3390.0	1847.6	5.6	6.0	4.6	44.7	268.3	10.7	0.884	140.0E
FEB 9	7	32	49.4	17	44 8.6	391.4	3361.0	1831.7	5.3	5.1	10.1	56.9	271.7	11.7	0.941	151.8E
FEB 10	8	25	13.4	16	5 4.9	394.6	3333.9	1817.0	4.8	4.0	14.9	69.0	273.2	12.7	0.979	163.4E
FEB 11	9	15	50.2	13	41 44.2	397.6	3308.9	1803.4	4.0	2.7	18.9	81.2	264.3	13.7	0.998	174.7E
FEB 12	10	4	38.1	10	43 35.9	400.3	3286.7	1791.3	3.1	1.3	21.9	93.3	119.5	14.7	0.997	173.6W
FEB 13	10	51	48.5	7	20 30.2	402.6	3268.0	1781.1	1.9	-0.1	23.9	105.4	112.1	15.7	0.977	162.6W
FEB 14	11	37	43.5	3	41 54.9	404.3	3254.0	1773.5	0.7	-1.5	24.8	117.6	111.1	16.7	0.940	151.6W
FEB 15	12	22	52.3	0	-3-25.1	405.3	3246.0	1769.1	-0.7	-2.9	24.8	129.7	110.6	17.7	0.888	140.8W
FEB 16	13	7	48.0	-3	-47-27.9	405.4	3245.1	1768.6	-2.1	-4.1	23.7	141.9	109.8	18.7	0.822	130.0W
FEB 17	13	53	6.1	-7	-22-40.5	404.5	3252.7	1772.7	-3.5	-5.1	21.6	154.0	108.3	19.7	0.744	119.1W
FEB 18	14	39	22.2	-10	-41-34.7	402.4	3269.5	1781.9	-4.7	-5.9	18.6	166.2	106.3	20.7	0.658	108.3W
FEB 19	15	27	9.9	-13	-36-21.6	399.1	3296.2	1796.4	-5.8	-6.5	14.8	178.3	103.7	21.7	0.564	97.2W
FEB 20	16	16	57.1	-15	-58-31.6	394.8	3332.7	1816.3	-6.6	-6.8	10.2	190.5	100.4	22.7	0.466	86.0W
FEB 21	17	9	1.8	-17	-38-52.1	389.5	3378.0	1841.0	-7.1	-6.8	4.9	202.7	96.5	23.7	0.367	74.4W
FEB 22	18	3	26.7	-18	-27-57.6	383.5	3430.4	1869.6	-7.3	-6.4	359.1	214.9	92.3	24.7	0.270	62.4W
FEB 23	18	59	55.4	-18	-17-23.4	377.3	3486.8	1900.3	-7.0	-5.7	353.2	227.1	87.8	25.7	0.180	50.1W
FEB 24	19	57	54.2	-17	-1-39.8	371.4	3542.9	1930.9	-6.3	-4.6	347.6	239.2	83.4	26.7	0.102	37.2W
FEB 25	20	56	38.8	-14	40-17.3	366.1	3593.5	1958.4	-5.2	-3.3	342.6	251.4	79.6	27.7	0.043	23.9W
FEB 26	21	55	26.9	-11	-19-15.1	362.1	3633.2	1980.1	-3.7	-1.6	338.6	263.6	77.0	28.7	0.008	10.2W
FEB 27	22	53	48.7	-7	-11 -8.0	359.7	3657.5	1993.3	-2.0	0.2	336.1	275.9	249.6	0.3	0.001	3.8E
FEB 28	23	51	32.6	-2	-33-41.6	359.1	3663.6	1996.7	-0.2	1.9	335.1	288.1	251.2	1.3	0.024	17.9E
MAR 1	0	48	42.2	2	12 36.1	360.3	3651.6	1990.1	1.6	3.6	335.8	300.3	251.5	2.3	0.076	32.0E
MAR 2	1	45	30.0	6	47 17.6	363.0	3623.9	1975.0	3.3	4.9	338.0	312.5	252.8	3.3	0.152	45.8E
MAR 3	2	42	8.7	10	52 11.5	367.0	3584.8	1957.7	4.7	6.0	341.6	324.7	255.1	4.3	0.247	59.4E
MAR 4	3	38	44.4	14	12 49.7	371.8	3538.9	1928.7	5.8	6.6	346.3	336.8	258.3	5.3	0.352	72.6E
MAR 5																

Date	RA	(Mean)	Dec	Dist	H.P.	Diam	Libration			Sun	P.A.	Age	Phase	Solar			
(0 DT)	(h	m	s)	(d	'	"	(1000*km)	([°])	([°])	l	b	c	Colong	Limb	(day)		Elong
APR 1	4	16	10.4	16	0	50.7	368.9	3566.2	1943.6	6.2	6.7	349.8	317.9	263.7	3.9	0.208	54.1E
APR 2	5	14	18.4	17	50	54.4	374.8	3510.7	1913.3	7.1	6.7	355.8	330.1	267.6	4.9	0.307	67.1E
APR 3	6	11	21.0	18	35	20.3	380.8	3455.0	1883.0	7.6	6.2	1.8	342.3	272.0	5.9	0.412	79.7E
APR 4	7	6	44.0	18	17	2.1	386.6	3403.0	1854.6	7.6	5.4	7.5	354.5	276.4	6.9	0.517	91.8E
APR 5	8	0	4.3	17	2	33.3	391.9	3357.1	1829.6	7.2	4.4	12.7	6.7	280.7	7.9	0.619	103.6E
APR 6	8	51	14.1	15	0	26.1	396.4	3318.7	1808.7	6.4	3.2	17.1	18.9	284.5	8.9	0.713	115.1E
APR 7	9	40	20.2	12	19	53.7	400.1	3288.2	1792.1	5.4	1.9	20.5	31.1	287.9	9.9	0.797	126.3E
APR 8	10	27	40.9	9	10	3.1	402.9	3265.5	1779.7	4.2	0.5	23.0	43.2	291.0	10.9	0.868	137.3E
APR 9	11	13	42.2	5	39	37.5	404.8	3249.9	1771.2	2.9	-0.9	24.5	55.4	294.0	11.9	0.925	148.2E
APR 10	11	58	53.7	1	56	57.1	405.9	3240.9	1766.3	1.5	-2.2	24.9	67.6	297.8	12.9	0.967	159.0E
APR 11	12	43	46.7	-1	-49	-51.2	406.3	3237.7	1764.6	0.1	-3.5	24.3	79.7	307.5	13.9	0.992	169.5E
APR 12	13	28	52.0	-5	-32	-42.3	406.1	3240.0	1765.8	-1.3	-4.6	22.8	91.9	33.3	14.9	0.999	176.4W
APR 13	14	14	38.1	-9	-3	-24.2	405.1	3247.4	1769.8	-2.6	-5.5	20.3	104.1	89.8	15.9	0.988	167.6W
APR 14	15	1	30.3	-12	-13	-33.7	403.6	3260.0	1776.7	-3.7	-6.2	16.9	116.3	95.1	16.9	0.960	156.9W
APR 15	15	49	47.8	-14	-54	-40.9	401.3	3278.1	1786.6	-4.8	-6.6	12.7	128.4	94.9	17.9	0.915	146.0W
APR 16	16	39	41.9	-16	-58	-21.6	398.4	3302.1	1799.6	-5.7	-6.7	7.8	140.6	92.8	18.9	0.853	134.8W
APR 17	17	31	14.0	-18	-16	-42.4	394.8	3332.3	1816.1	-6.5	-6.5	2.5	152.8	89.6	19.9	0.777	123.5W
APR 18	18	24	14.7	-18	-42	-56.9	390.5	3369.1	1836.1	-7.0	-6.0	356.9	165.0	85.7	20.9	0.688	111.9W
APR 19	19	18	25.9	-18	-12	-10.9	385.6	3412.0	1859.5	-7.3	-5.2	351.3	177.2	81.6	21.9	0.589	100.1W
APR 20	20	13	25.2	-16	-42	-8.7	380.2	3460.1	1885.8	-7.3	-4.1	346.1	189.4	77.5	22.9	0.483	87.9W
APR 21	21	8	52.5	-14	-13	-54.4	374.7	3511.4	1913.7	-6.9	-2.7	341.6	201.6	73.6	23.9	0.374	75.3W
APR 22	22	4	35.5	-10	-52	-23.5	369.3	3562.5	1941.6	-6.2	-1.1	338.1	213.8	70.1	24.9	0.269	62.3W
APR 23	23	0	33.4	-6	-46	-44.0	364.5	3609.3	1967.1	-5.0	0.5	335.9	226.0	67.0	25.9	0.172	48.9W
APR 24	23	56	56.0	-2	-10	-24.6	360.8	3646.5	1987.3	-3.5	2.2	335.1	238.2	64.2	26.9	0.092	35.2W
APR 25	0	53	59.4	2	39	3.6	358.6	3669.3	1999.7	-1.7	3.8	336.0	250.5	59.8	27.9	0.034	21.3W
APR 26	1	51	59.0	7	21	11.8	358.1	3674.0	2002.3	0.3	5.1	338.4	262.7	40.3	28.9	0.005	7.9W
APR 27	2	51	0.2	11	34	38.2	359.5	3659.4	1994.3	2.3	6.0	342.4	274.9	285.2	0.5	0.006	8.6E
APR 28	3	50	49.8	15	0	2.9	362.7	3627.1	1976.8	4.2	6.5	347.5	287.2	270.3	1.5	0.036	21.8E
APR 29	4	50	53.2	17	23	9.8	367.4	3581.1	1951.7	5.7	6.6	353.4	299.4	270.4	2.5	0.092	35.3E
APR 30	5	50	19.0	18	36	51.1	373.1	3526.6	1922.0	6.8	6.2	359.6	311.6	273.3	3.5	0.169	48.4E
MAY 1	6	48	12.6	18	41	25.9	379.2	3469.2	1890.7	7.4	5.5	5.7	323.8	277.1	4.5	0.259	61.1E
MAY 2	7	43	51.4	17	43	9.0	385.4	3413.7	1860.5	7.5	4.5	11.2	336.1	281.1	5.5	0.358	73.3E
MAY 3	8	36	54.3	15	51	43.0	391.1	3363.6	1833.1	7.1	3.4	15.9	348.3	284.8	6.5	0.459	85.1E
MAY 4	9	27	22.9	13	17	58.7	396.1	3321.2	1810.0	6.3	2.0	19.7	0.5	288.0	7.5	0.559	96.6E
MAY 5	10	15	36.3	10	12	22.9	400.2	3287.8	1791.8	5.3	0.7	22.5	12.7	290.8	8.5	0.654	107.8E
MAY 6	11	2	5.1	6	44	22.2	403.1	3263.7	1778.7	4.0	-0.7	24.2	24.9	292.9	9.5	0.742	118.8E
MAY 7	11	47	25.0	3	2	23.5	405.0	3248.7	1770.6	2.7	-2.1	24.9	37.1	294.7	10.5	0.820	129.6E
MAY 8	12	32	13.5	0	-45	-44.0	405.8	3242.1	1767.0	1.3	-3.3	24.6	49.3	296.2	11.5	0.886	140.4E
MAY 9	13	17	7.3	-4	-32	-21.1	405.7	3243.0	1767.4	-0.1	-4.4	23.2	61.5	298.2	12.5	0.938	151.2E
MAY 10	14	2	40.1	-8	-9	-35.0	404.8	3250.2	1771.4	-1.4	-5.3	21.0	73.6	302.5	13.5	0.975	161.8E
MAY 11	14	49	21.0	-11	-29	-3.6	403.2	3263.0	1778.3	-2.6	-6.0	17.8	85.8	321.3	14.5	0.995	171.9E
MAY 12	15	37	31.6	-14	-21	-55.0	401.1	3280.4	1787.8	-3.6	-6.5	13.8	98.0	55.6	15.5	0.997	173.4W
MAY 13	16	27	23.5	-16	-39	-4.5	398.5	3301.8	1799.5	-4.5	-6.6	9.0	110.2	81.8	16.5	0.980	163.5W
MAY 14	17	18	55.4	-18	-11	-52.4	395.5	3326.9	1813.2	-5.2	-6.4	3.7	122.4	84.7	17.5	0.943	152.4W
MAY 15	18	11	52.8	-18	-52	-57.5	392.1	3355.5	1828.7	-5.7	-5.9	358.1	134.6	83.2	18.5	0.889	140.9W
MAY 16	19	5	50.4	-18	-37	-16.1	388.4	3387.6	1846.2	-6.1	-5.2	352.6	146.7	80.3	19.5	0.817	129.2W
MAY 17	20	0	18.5	-17	-22	-50.1	384.4	3422.9	1865.5	-6.3	-4.1	347.3	158.9	76.9	20.5	0.730	117.2W
MAY 18	20	54	51.5	-15	-11	-10.4	380.1	3461.1	1886.3	-6.2	-2.8	342.6	171.1	73.5	21.5	0.630	105.0W
MAY 19	21	49	15.2	-12	-7	-14.4	375.8	3501.2	1908.1	-5.9	-1.3	338.9	183.4	70.4	22.5	0.523	92.4W
MAY 20	22	43	30.3	-8	-19	-11.7	371.5	3541.1	1929.9	-5.3	0.3	336.4	195.6	67.9	23.5	0.411	79.6W
MAY 21	23	37	51.7	-3	-58	-10.3	367.7	3578.3	1950.2	-4.4	1.9	335.2	207.8	66.0	24.5	0.301	66.4W
MAY 22	0	32	44.9	0	41	48.0	364.5	3609.3	1967.1	-3.1	3.4	335.5	220.0	64.8	25.5	0.200	53.0W
MAY 23	1	28	38.3	5	23	56.1	362.4	3630.3	1978.5	-1.6	4.7	337.3	232.3	63.9	26.5	0.114	39.3W
MAY 24	2	25	54.7	9	49	17.5	361.7	3637.8	1982.6	0.1	5.7	340.6	244.5	62.1	27.5	0.049	25.6W
MAY 25	3	24	41.0	13	38	17.4	362.4	3629.9	1978.3	1.9	6.3	345.2	256.7	52.5	28.5	0.012	12.3W
MAY 26	4	24	38.7	16	33	17.0	364.8	3606.4	1965.5	3.6	6.5	350.8	269.0	323.7	0.2	0.002	5.6E
MAY 27	5	25	1.9	18	21	37.8	368.6	3569.4	1945.3	5.0	6.3	357.0	281.2	282.7	1.2	0.022	16.8E
MAY 28	6	24	46.1	18	58	3.6	373.5	3522.6	1919.8	6.0	5.7	3.3	293.5	280.1	2.2	0.066	29.7E
MAY 29	7	22	46.2	18	25	5.9	379.1	3470.6	1891.5	6.6	4.7	9.2	305.7	282.1	3.2	0.131	42.3E
MAY 30	8	18	15.5	16	51	18.6	384.9	3418.0	1862.8	6.7	3.5	14.4	318.0	285.0	4.2	0.211	54.6E
MAY 31	9	10	54.8	14	28	24.4	390.5	3368.9	1836.1	6.4	2.2	18.6	330.2	287.9	5.2	0.301	66.4E
JUN 1	10	0	51.7	11	28	37.0	395.5	3326.3	1812.8	5.7	0.8	21.7	342.4	290.3	6.2	0.397	78.

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*Km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JUL 1	12 5 25.6		2 0 3.7		402.3	3270.2	1782.2	2.5	-3.1	24.8	349.0	293.1	6.8	0.427	81.5E
JUL 2	12 50 26.8		-1-52 -2.6		403.9	3257.5	1775.3	1.2	-4.2	24.1	1.3	293.0	7.8	0.522	92.4E
JUL 3	13 35 27.5		-5-38-50.9		404.2	3255.1	1774.1	-0.1	-5.2	22.4	13.5	292.3	8.8	0.616	103.3E
JUL 4	14 21 9.6		-9-13 -6.5		403.2	3262.8	1778.2	-1.4	-6.0	19.7	25.7	291.1	9.8	0.706	114.1E
JUL 5	15 8 10.2		-12-27 -6.5		401.1	3279.7	1787.5	-2.5	-6.5	16.2	37.9	289.3	10.8	0.789	125.1E
JUL 6	15 56 58.8		-15-12-16.5		398.1	3304.6	1801.0	-3.5	-6.7	11.9	50.1	287.2	11.8	0.862	136.3E
JUL 7	16 47 52.6		-17-19-14.7		394.4	3335.5	1817.8	-4.2	-6.6	6.9	62.3	285.1	12.8	0.923	147.7E
JUL 8	17 40 51.3		-18-38-30.1		390.4	3370.3	1836.8	-4.6	-6.2	1.3	74.5	284.5	13.8	0.968	159.3E
JUL 9	18 35 34.8		-19 -1-41.8		386.2	3406.7	1856.6	-4.8	-5.4	355.6	86.7	293.2	14.8	0.994	170.8E
JUL 10	19 31 25.5		-18-23-22.1		382.2	3442.2	1876.0	-4.7	-4.4	350.0	98.9	42.0	15.8	0.998	174.7W
JUL 11	20 27 37.7		-16-42-30.6		378.6	3474.7	1893.7	-4.4	-3.1	344.8	111.1	68.4	16.8	0.979	163.2W
JUL 12	21 23 29.9		-14 -3-15.6		375.6	3502.7	1908.9	-4.0	-1.6	340.5	123.3	69.9	17.8	0.936	150.6W
JUL 13	22 18 37.2		-10-34-29.3		373.2	3525.1	1921.2	-3.3	0.0	337.4	135.5	69.0	18.8	0.871	137.7W
JUL 14	23 12 55.0		-6-28-32.8		371.5	3541.6	1930.2	-2.6	1.6	335.6	147.7	68.0	19.8	0.786	124.7W
JUL 15	0 6 38.2		-1-59-50.7		370.4	3552.4	1936.1	-1.7	3.2	335.2	159.9	67.5	20.8	0.685	111.6W
JUL 16	1 0 14.8		2 36 14.9		369.8	3557.9	1939.0	-0.7	4.5	336.2	172.1	67.9	21.8	0.574	98.4W
JUL 17	1 54 18.3		7 4 3.2		369.7	3558.3	1939.2	0.3	5.6	338.6	184.3	69.1	22.8	0.459	85.2W
JUL 18	2 49 18.7		11 7 58.9		370.2	3553.6	1936.7	1.3	6.3	342.3	196.6	71.2	23.8	0.346	72.0W
JUL 19	3 45 33.9		14 33 3.6		371.3	3543.8	1931.4	2.4	6.7	347.1	208.8	74.1	24.8	0.242	58.8W
JUL 20	4 43 1.3		17 5 57.4		372.9	3528.5	1923.0	3.4	6.6	352.7	221.0	77.4	25.8	0.152	45.8W
JUL 21	5 41 13.4		18 36 34.7		375.1	3507.4	1911.5	4.2	6.2	358.7	233.3	80.7	26.8	0.080	32.8W
JUL 22	6 39 21.7		18 59 48.7		378.0	3480.7	1897.0	4.8	5.3	4.8	245.5	82.5	27.8	0.031	20.1W
JUL 23	7 36 29.0		18 16 33.7		381.4	3449.2	1879.8	5.2	4.2	10.6	257.8	74.8	28.8	0.005	7.8W
JUL 24	8 31 45.7		16 33 23.6		385.3	3414.4	1860.8	5.3	2.9	15.6	270.0	307.4	0.4	0.002	5.7E
JUL 25	9 24 42.1		14 0 50.3		389.5	3378.1	1841.1	5.0	1.5	19.6	282.3	291.7	1.4	0.023	17.3E
JUL 26	10 15 12.6		10 51 9.9		393.6	3342.8	1821.8	4.5	0.0	22.5	294.5	290.9	2.4	0.063	29.0E
JUL 27	11 3 31.7		7 16 30.5		397.4	3310.8	1804.4	3.7	-1.5	24.2	306.8	291.4	3.4	0.120	40.4E
JUL 28	11 50 8.1		3 27 47.3		400.6	3284.3	1790.0	2.7	-2.8	24.9	319.0	291.7	4.4	0.191	51.7E
JUL 29	12 35 38.3		0-25-35.7		402.9	3265.4	1779.6	1.5	-4.1	24.4	331.3	291.6	5.4	0.272	62.7E
JUL 30	13 20 42.6		-4-15-31.3		404.1	3255.4	1774.2	0.2	-5.1	23.0	343.5	290.8	6.4	0.360	73.6E
JUL 31	14 6 1.8		-7-54-37.0		404.1	3255.4	1774.2	-1.2	-5.9	20.7	355.7	289.4	7.4	0.453	84.5E
AUG 1	14 52 14.9		-11-15-38.4		402.9	3265.6	1779.8	-2.4	-6.5	17.5	7.9	287.4	8.4	0.549	95.4E
AUG 2	15 39 56.8		-14-10-56.1		400.4	3286.0	1790.9	-3.5	-6.8	13.4	20.1	284.8	9.4	0.643	106.4E
AUG 3	16 29 34.0		-16-32 -6.2		396.8	3315.7	1807.1	-4.4	-6.8	8.7	32.4	281.6	10.4	0.733	117.7E
AUG 4	17 21 20.2		-18-10 -7.4		392.4	3353.1	1827.4	-5.0	-6.5	3.4	44.6	277.9	11.4	0.817	129.2E
AUG 5	18 15 11.9		-18-56 -3.8		387.4	3395.9	1850.8	-5.4	-5.8	357.7	56.8	274.0	12.4	0.889	141.0E
AUG 6	19 10 45.8		-18-42-30.2		382.3	3441.1	1875.4	-5.4	-4.8	352.0	68.9	270.4	13.4	0.946	153.2E
AUG 7	20 7 23.0		-17-25-21.2		377.5	3485.3	1899.5	-5.1	-3.6	346.6	81.1	268.7	14.4	0.985	165.7E
AUG 8	21 4 18.9		-15 -5-29.2		373.2	3524.9	1921.1	-4.5	-2.1	341.9	93.3	306.5	15.4	1.000	178.0E
AUG 9	22 0 55.9		-11-49-27.1		369.9	3556.7	1938.4	-3.6	-0.4	338.3	105.5	68.4	16.4	0.989	168.0W
AUG 10	22 56 52.9		-7-48-57.9		367.7	3578.4	1950.2	-2.5	1.3	336.0	117.7	69.6	17.4	0.952	154.7W
AUG 11	23 52 8.6		-3-19-26.7		366.6	3589.0	1956.0	-1.3	2.9	335.2	129.9	69.4	18.4	0.890	141.2W
AUG 12	0 46 58.2		1 21 48.6		366.6	3589.0	1956.0	0.0	4.3	335.9	142.1	69.7	19.4	0.806	127.7W
AUG 13	1 41 46.3		5 57 12.3		367.5	3579.7	1950.9	1.2	5.5	338.0	154.3	70.8	20.4	0.706	114.2W
AUG 14	2 36 58.6		10 10 1.7		369.2	3563.2	1941.9	2.4	6.3	341.4	166.5	72.9	21.4	0.596	100.9W
AUG 15	3 32 53.3		13 45 15.2		371.5	3541.5	1930.1	3.4	6.7	346.0	178.7	76.0	22.4	0.481	87.7W
AUG 16	4 29 34.0		16 30 17.4		374.1	3516.4	1916.4	4.3	6.7	351.4	190.9	79.7	23.4	0.369	74.7W
AUG 17	5 26 45.5		18 15 50.1		377.1	3489.2	1901.6	5.0	6.4	357.2	203.1	84.0	24.4	0.266	61.9W
AUG 18	6 23 54.6		18 56 49.2		380.2	3460.5	1886.0	5.4	5.6	3.3	215.4	88.6	25.4	0.175	49.3W
AUG 19	7 20 18.2		18 33 2.6		383.5	3431.0	1869.9	5.6	4.6	9.0	227.6	93.1	26.4	0.101	36.9W
AUG 20	8 15 14.6		17 9 4.4		386.9	3400.9	1853.5	5.5	3.3	14.2	239.8	97.2	27.4	0.046	24.8W
AUG 21	9 8 14.7		14 53 18.2		390.3	3370.7	1837.0	5.2	1.9	18.4	252.1	100.3	28.4	0.012	12.8W
AUG 22	9 59 7.2		11 56 26.8		393.8	3341.2	1821.0	4.7	0.4	21.7	264.3	91.0	29.4	0.000	1.1W
AUG 23	10 47 58.2		8 30 0.5		397.1	3313.4	1805.8	3.9	-1.1	23.8	276.6	287.9	0.9	0.008	10.5E
AUG 24	11 35 7.4		4 45 8.9		400.1	3288.6	1792.3	3.0	-2.5	24.8	288.8	288.6	1.9	0.036	21.8E
AUG 25	12 31 3.5		0 52 2.6		402.5	3268.4	1781.3	1.8	-3.8	24.7	301.1	288.9	2.9	0.081	33.0E
AUG 26	13 6 19.8		-3 0-15.4		404.3	3254.2	1773.6	0.6	-4.9	23.6	313.3	288.6	3.9	0.141	44.0E
AUG 27	13 51 31.7		-6-43-39.7		405.1	3247.6	1770.0	-0.7	-5.8	21.5	325.5	287.5	4.9	0.213	54.9E
AUG 28	14 37 14.6		-10-10-40.3		404.8	3249.8	1771.1	-2.0	-6.4	18.6	337.7	285.8	5.9	0.296	65.7E
AUG 29	15 24 1.2		-13-13-56.3		403.4	3261.6	1777.6	-3.3	-6.8	14.8	350.0	283.3	6.9	0.386	76.6E
AUG 30	16 12 19.9		-15-45-53.6		400.7	3283.6	1789.6	-4.4	-6.9	10.3	2.2	280.2	7.9	0.481	87.6E
AUG 31	17 2 30.4		-17-38-34.6		396.8	3315.5	1807.0	-5.3	-6.6	5.3	14.4	276.5	8.9	0.578	98.8E
SEP 1	17 54 40.7		-18-43-50.9		392.0	3356.5	1829.3	-6.0	-6.1	359.8	26.6	272.3	9.9	0.675	110.3E
SEP 2	18 48 43.8		-18-54 -6.8		386.4	3404.7	1855.6	-6.4	-5.3	354.2	38.8	267.7	10.9	0.767	122.1E
SEP 3	19 44 17.6		-18 -3-36.2		380.5	3457.4	1884.3	-6.3	-4.1	348.7	51.0	263.0	11.9	0.850	134.4E
SEP 4	20 40 49.6		-16 -9-58.0		374.8	3510.7	1913.3	-5.9	-2.7	343.7	63.2	258.3	12.9	0.920	147.0E
SEP 5	21 37 45.6		-13-15-43.8		369.6	3560.0	1940.2	-5.1	-1.1	339.6	75.3	253.4	13.9	0.970	160.1E
SEP 6	22 34 39.6		-9-29 -3.5		365.4	3600.5	1962.3	-4.0	0.6	336.7	87.5	244.0	14.9	0.997	173.5E
SEP 7	23 31 19.2		-5 -3-29.7		362.6	3628.1	1977.3	-2.5	2.3	335.3	99.7	80.6	15.9	0.996	172.5W
SEP 8	0 27 47.1		0-16-42.2		361.4	3640.2	1983.9	-0.9	3.9	335.5	111.9	74.5	16.9	0.966	158.7W
SEP 9	1 24 16.0		4 31 28.5		361.8	3636.3	1981.8	0.9	5.2	337.2	124.0	73.9	17.9	0.909	144.8W
SEP 10	2 21 1.7		9 1 10.3		363.6	3618.1	1971.9	2.5	6.1	340.4	136.2	75.1	18.9	0.828	130.9W
SEP 11	3 18 14.8		12 54 27.6		366.6	3588.8	1955.9	4.0	6.7	344.7	148.4	77.7	19.9	0.731	117.3W
SEP 12	4 15 53.4		15 56 53.3		370.4	3552.1	1935.9	5.2	6.8	350.0	160.6	81.2	20.9	0.622	104.0W
SEP 13	5 13 40.1		17 58 32.6		374.6	3511.9	1914.0	6.1	6.4	355.9	172.8	85.5	21.9	0.510	91.1W
SEP 14	6 11 3.5		18 54 36.6		379.0	3471.0	1891.7	6.6	5.8	1.9	185.0	90.2	22.9	0.401	78.4W

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
OCT 1	20 18 3.0	-17 -8 -19.3	381.0	3453.1	1882.0	-7.2	-3.2	345.6	32.6	258.1	10.3	0.714	115.2E		
OCT 2	21 13 36.5	-14 -40 -57.0	374.7	3511.3	1913.7	-6.9	-1.7	341.2	44.8	253.7	11.3	0.807	127.7E		
OCT 3	22 9 37.8	-11 -17 -42.8	368.7	3568.1	1944.6	-6.1	-0.1	337.8	57.0	249.4	12.3	0.888	140.8E		
OCT 4	23 5 58.8	-7 -7 -44.2	363.6	3618.0	1971.8	-4.9	1.6	335.8	69.1	244.7	13.3	0.950	154.2E		
OCT 5	0 2 42.0	-2 -25 -15.8	359.9	3655.5	1992.2	-3.2	3.2	335.2	81.3	234.9	14.3	0.989	167.9E		
OCT 6	0 59 58.0	2 31 0.9	357.9	3675.8	2003.3	-1.3	4.7	336.3	93.5	125.3	15.3	0.999	175.8W		
OCT 7	1 57 59.3	7 19 36.1	357.8	3676.7	2003.8	0.8	5.7	338.9	105.6	84.3	16.3	0.978	162.9W		
OCT 8	2 56 51.5	11 38 41.6	359.6	3658.5	1993.9	2.8	6.4	343.0	117.8	81.7	17.3	0.929	148.9W		
OCT 9	3 56 25.6	15 9 5.4	363.0	3624.4	1975.3	4.7	6.7	348.2	129.9	83.4	18.3	0.855	135.1W		
OCT 10	4 56 13.8	17 36 48.6	367.6	3579.0	1950.5	6.1	6.4	354.1	142.1	86.8	19.3	0.763	121.6W		
OCT 11	5 55 32.3	18 54 40.2	373.0	3527.6	1922.6	7.2	5.8	0.3	154.3	91.1	20.3	0.660	108.5W		
OCT 12	6 53 32.0	19 2 25.4	378.6	3475.1	1893.9	7.7	4.9	6.4	166.4	95.7	21.3	0.552	95.8W		
OCT 13	7 49 32.1	18 5 29.6	384.1	3425.0	1866.6	7.8	3.7	11.9	178.6	100.2	22.3	0.445	83.5W		
OCT 14	8 43 9.0	16 12 56.3	389.3	3379.7	1842.0	7.5	2.4	16.5	190.8	104.4	23.3	0.343	71.6W		
OCT 15	9 34 19.7	13 35 26.2	393.8	3340.6	1820.7	6.9	1.0	20.2	203.0	108.2	24.3	0.251	60.0W		
OCT 16	10 23 17.7	10 23 51.1	397.7	3308.2	1802.9	6.1	-0.5	22.8	215.2	111.5	25.3	0.170	48.6W		
OCT 17	11 10 28.2	6 48 30.2	400.8	3282.2	1788.8	5.0	-1.9	24.3	227.4	114.7	26.3	0.104	37.5W		
OCT 18	11 56 22.1	2 58 58.7	403.3	3262.3	1777.9	3.8	-3.2	24.8	239.6	118.2	27.3	0.053	26.5W		
OCT 19	12 41 32.6	0-55-45.4	405.1	3248.0	1770.2	2.6	-4.3	24.2	251.8	124.7	28.3	0.019	15.8W		
OCT 20	13 26 32.4	-4-47-9.4	406.2	3239.1	1765.3	1.3	-5.3	22.7	264.1	152.6	29.3	0.003	6.1W		
OCT 21	14 11 51.7	-8-26-54.3	406.7	3235.3	1763.2	0.0	-6.0	20.2	276.3	253.7	30.3	0.005	7.7E		
OCT 22	14 57 56.9	-11-46-49.0	406.5	3236.8	1764.1	-1.3	-6.5	16.9	288.5	271.0	31.3	0.024	17.8E		
OCT 23	15 45 8.8	-14-38-49.9	405.6	3244.1	1768.0	-2.6	-6.6	12.8	300.7	273.4	32.3	0.061	28.4E		
OCT 24	16 33 40.6	-16-55-9.4	403.9	3257.7	1775.4	-3.8	-6.5	8.1	312.9	272.3	33.3	0.113	39.2E		
OCT 25	17 23 36.8	-18-28-32.1	401.3	3278.3	1786.7	-4.9	-6.1	3.0	325.1	269.7	34.3	0.180	50.1E		
OCT 26	18 14 52.1	-19-12-40.1	397.9	3306.6	1802.1	-5.9	-5.5	357.6	337.3	266.2	35.3	0.260	61.2E		
OCT 27	19 7 13.4	-19-2-43.7	393.6	3342.9	1821.9	-6.7	-4.5	352.2	349.5	262.3	36.3	0.351	72.6E		
OCT 28	20 0 23.2	-17-55-53.7	388.4	3387.0	1845.9	-7.3	-3.4	347.1	1.7	258.2	37.3	0.451	84.2E		
OCT 29	20 54 5.1	-15-51-51.6	382.7	3438.0	1873.7	-7.5	-2.0	342.6	13.8	254.3	38.3	0.555	96.1E		
OCT 30	21 48 9.1	-12-53-16.2	376.6	3493.6	1904.0	-7.3	-0.5	339.0	26.0	250.6	39.3	0.660	108.5E		
OCT 31	22 42 35.3	-9-6-10.6	370.5	3550.6	1935.1	-6.7	1.1	336.5	38.2	247.4	40.3	0.761	121.3E		
NOV 1	23 37 35.2	-4-40-30.1	365.0	3604.1	1964.2	-5.6	2.7	335.3	50.3	244.6	41.3	0.852	134.6E		
NOV 2	0 33 28.8	0 9 33.9	360.6	3648.6	1988.5	-4.1	4.1	335.6	62.5	241.7	42.3	0.926	148.3E		
NOV 3	1 30 39.0	5 5 36.2	357.7	3678.4	2004.7	-2.1	5.3	337.5	74.6	235.7	43.3	0.976	162.0E		
NOV 4	2 29 23.0	9 45 58.2	356.6	3689.3	2010.7	0.0	6.1	341.0	86.8	195.6	44.3	0.998	174.3E		
NOV 5	3 29 41.0	13 48 8.0	357.6	3679.5	2005.3	2.2	6.5	345.8	98.9	99.8	45.3	0.989	167.8W		
NOV 6	4 31 7.1	16 52 13.3	360.4	3650.3	1989.4	4.3	6.4	351.6	111.0	91.6	46.3	0.950	154.2W		
NOV 7	5 32 48.0	18 44 43.0	364.9	3605.7	1965.1	6.0	5.9	358.0	123.2	92.8	47.3	0.887	140.6W		
NOV 8	6 33 33.7	19 20 48.1	370.5	3551.3	1935.5	7.2	5.0	4.4	135.3	96.3	48.3	0.804	127.3W		
NOV 9	7 32 17.9	18 44 11.2	376.7	3493.0	1903.7	7.9	3.8	10.2	147.5	100.3	49.3	0.709	114.5W		
NOV 10	8 28 16.6	17 4 40.5	382.9	3435.6	1872.4	8.1	2.5	15.3	159.6	104.3	50.3	0.607	102.2W		
NOV 11	9 21 15.2	14 34 53.4	388.9	3383.1	1843.8	7.8	1.1	19.4	171.8	107.8	51.3	0.503	90.2W		
NOV 12	10 11 25.6	11 27 38.5	394.2	3337.8	1819.1	7.2	-0.4	22.3	184.0	110.8	52.3	0.403	78.7W		
NOV 13	10 59 16.5	7 54 32.3	398.6	3300.9	1799.0	6.3	-1.8	24.1	196.2	113.1	53.3	0.309	67.4W		
NOV 14	11 45 25.9	4 5 39.2	402.0	3272.9	1783.7	5.1	-3.1	24.8	208.3	114.9	54.3	0.224	56.4W		
NOV 15	12 30 34.3	0 9 49.1	404.4	3253.3	1773.1	3.8	-4.2	24.4	220.5	116.4	55.3	0.150	45.5W		
NOV 16	13 15 21.3	-3-44-51.1	405.9	3241.6	1766.7	2.5	-5.2	23.1	232.7	117.8	56.3	0.090	34.8W		
NOV 17	14 0 23.5	-7-30-28.2	406.5	3236.8	1764.0	1.2	-5.9	20.9	244.9	120.2	57.3	0.044	24.2W		
NOV 18	14 46 12.0	-10-59-0.6	406.3	3238.1	1764.8	-0.1	-6.4	17.8	257.1	127.5	58.3	0.014	13.8W		
NOV 19	15 33 11.1	-14-2-11.9	405.5	3244.8	1768.4	-1.3	-6.6	13.9	269.3	131.6	59.3	0.002	5.4W		
NOV 20	16 21 35.4	-16-31-39.7	404.0	3256.4	1774.7	-2.5	-6.5	9.3	281.5	141.0	60.3	0.008	10.2E		
NOV 21	17 11 27.7	-18-19-23.2	402.0	3272.6	1783.6	-3.6	-6.1	4.2	293.7	151.0	61.3	0.032	20.5E		
NOV 22	18 2 38.7	-19-18-24.8	399.5	3293.6	1795.0	-4.6	-5.4	358.9	305.9	161.0	62.3	0.074	31.4E		
NOV 23	18 54 48.1	-19-23-37.7	396.3	3319.6	1809.2	-5.4	-4.5	353.5	318.1	170.8	63.3	0.132	42.6E		
NOV 24	19 47 30.7	-18-32-25.9	392.6	3350.9	1826.3	-6.2	-3.4	348.3	330.3	181.8	64.3	0.207	54.0E		
NOV 25	20 40 22.9	-16-45-4.5	388.4	3387.7	1846.3	-6.7	-2.1	343.7	342.4	192.8	65.3	0.295	65.6E		
NOV 26	21 33 10.6	-14-4-39.7	383.6	3429.6	1869.1	-6.9	-0.6	339.9	354.6	203.3	66.3	0.393	77.5E		
NOV 27	22 25 53.1	-10-36-57.4	378.5	3475.6	1894.2	-6.9	0.9	337.1	6.8	248.6	67.3	0.500	89.8E		
NOV 28	23 18 44.3	-6-30-15.9	373.3	3523.9	1920.5	-6.4	2.4	335.5	18.9	246.5	68.3	0.609	102.4E		
NOV 29	0 12 10.7	-1-55-36.0	368.4	3571.3	1946.4	-5.6	3.8	335.3	31.1	245.1	69.3	0.716	115.4E		
NOV 30	1 6 46.2	2 52 57.1	364.1	3613.6	1969.4	-4.3	5.0	336.6	43.2	244.4	70.3	0.814	128.8E		
DEC 1	2 3 5.0	7 37 58.0	360.8	3646.0	1987.1	-2.6	5.9	339.3	55.4	244.0	71.3	0.897	142.5E		
DEC 2	3 1 30.2	11 59 9.4	359.1	3664.0	1996.8	-0.7	6.4	343.5	67.5	242.3	72.3	0.958	156.3E		
DEC 3	4 2 1.9	15 35 13.7	359.1	3664.2	1997.0	1.4	6.5	348.8	79.6	230.0	73.3	0.992	169.7E		
DEC 4	5 4 5.5	18 7 20.3	360.9	3645.8	1986.9	3.3	6.1	355.0	91.8	127.0	74.3	0.996	173.1W		
DEC 5	6 6 32.4	19 23 13.9	364.4	3610.5	1967.7	5.1	5.3	1.6	103.9	102.3	75.3	0.972	160.7W		
DEC 6	7 7 56.0	19 20 6.1	369.3	3562.6	1941.6	6.4	4.1	7.9	116.0	101.7	76.3	0.922			

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong		
	(h m s)							l	b	c							
JAN 1	5	38	43.6	18	59	0.9	364.9	3605.5	1965.0	2.7	5.7	358.7	72.3	252.2	13.1	0.981	164.3E
JAN 2	6	40	25.2	19	34	14.6	367.4	3581.1	1951.7	4.1	4.6	5.1	84.4	208.3	14.1	0.999	176.1E
JAN 3	7	41	1.6	18	52	38.0	371.2	3544.6	1931.8	5.2	3.2	11.1	96.5	111.7	15.1	0.989	168.0W
JAN 4	8	39	19.0	17	2	21.2	376.0	3499.2	1907.1	5.9	1.7	16.2	108.6	107.7	16.1	0.955	155.4W
JAN 5	9	34	35.1	14	17	12.5	381.4	3449.3	1879.9	6.3	0.2	20.2	120.8	108.8	17.1	0.899	142.9W
JAN 6	10	26	43.5	10	52	52.2	387.0	3399.2	1852.6	6.2	-1.4	22.9	132.9	110.5	18.1	0.827	130.8W
JAN 7	11	16	5.3	7	4	1.9	392.4	3352.8	1827.3	5.7	-2.8	24.4	145.0	111.8	19.1	0.744	119.1W
JAN 8	12	3	18.3	3	3	5.8	397.1	3313.0	1805.6	4.9	-4.1	24.7	157.2	112.5	20.1	0.653	107.7W
JAN 9	12	49	7.0	0	-59	-53.1	400.8	3282.1	1788.8	3.8	-5.1	24.0	169.3	112.5	21.1	0.558	96.6W
JAN 10	13	34	17.8	-4	-56	-38.5	403.4	3261.3	1777.4	2.6	-5.9	22.2	181.5	111.8	22.1	0.463	85.6W
JAN 11	14	19	34.7	-8	-39	-51.6	404.7	3251.1	1771.8	1.4	-6.5	19.6	193.7	110.5	23.1	0.370	74.8W
JAN 12	15	5	37.6	-12	-2	-26.1	404.7	3251.2	1771.9	0.1	-6.8	16.2	205.8	108.5	24.1	0.282	64.0W
JAN 13	15	52	59.2	-14	-56	-55.4	403.5	3260.8	1777.2	-1.1	-6.7	12.0	218.0	106.0	25.1	0.201	53.2W
JAN 14	16	42	1.4	-17	-15	-20.8	401.3	3278.8	1787.0	-2.2	-6.4	7.2	230.2	103.1	26.1	0.130	42.2W
JAN 15	17	32	51.9	-18	-49	-29.0	398.3	3303.4	1800.4	-3.2	-5.8	1.9	242.4	100.1	27.1	0.072	31.1W
JAN 16	18	25	20.8	-19	-31	-43.1	394.8	3332.8	1816.4	-3.9	-5.0	356.4	254.5	98.1	28.1	0.030	19.8W
JAN 17	19	19	1.7	-19	-16	-20.0	391.0	3364.7	1833.8	-4.5	-3.8	351.0	266.7	102.6	29.1	0.005	8.3W
JAN 18	20	13	17.3	-18	0	-53.4	387.3	3397.3	1851.5	-4.8	-2.5	345.9	278.9	233.0	0.3	0.002	4.5E
JAN 19	21	7	30.0	-15	-47	-8.6	383.7	3428.7	1868.6	-4.9	-1.0	341.6	291.1	250.7	1.3	0.020	16.2E
JAN 20	22	1	12.4	-12	-41	-8.3	380.5	3457.8	1884.5	-4.8	0.6	338.3	303.3	250.8	2.3	0.061	28.5E
JAN 21	22	54	14.5	-8	-52	-30.4	377.7	3483.7	1898.6	-4.5	2.2	336.1	315.5	249.6	3.3	0.123	41.0E
JAN 22	23	46	45.2	-4	-33	-24.0	375.2	3506.2	1910.9	-4.0	3.6	335.3	327.7	248.7	4.3	0.205	53.7E
JAN 23	0	39	8.9	0	2	29.2	373.2	3525.2	1921.2	-3.3	4.9	335.8	339.8	248.5	5.3	0.302	66.5E
JAN 24	1	31	59.9	4	40	30.5	371.6	3540.9	1929.8	-2.5	5.9	337.7	352.0	249.3	6.3	0.410	79.5E
JAN 25	2	25	54.9	9	5	20.3	370.3	3552.8	1936.3	-1.5	6.5	340.8	4.2	251.0	7.3	0.524	92.6E
JAN 26	3	21	24.9	13	1	9.5	369.5	3560.5	1940.5	-0.4	6.8	345.2	16.3	253.7	8.3	0.637	105.7E
JAN 27	4	18	44.2	16	12	16.0	369.3	3562.9	1941.8	0.8	6.6	350.5	28.5	257.3	9.3	0.743	118.9E
JAN 28	5	17	41.8	18	24	28.8	369.7	3558.7	1939.5	1.9	6.0	356.5	40.6	261.6	10.3	0.836	132.2E
JAN 29	6	17	36.4	19	27	22.8	370.9	3546.8	1933.0	3.0	5.0	2.8	52.7	266.1	11.3	0.912	145.3E
JAN 30	7	17	23.8	19	16	39.5	373.1	3526.7	1922.0	3.9	3.8	8.9	64.9	270.1	12.3	0.965	158.4E
JAN 31	8	15	54.0	17	55	21.2	376.1	3498.6	1906.7	4.6	2.3	14.3	77.0	271.0	13.3	0.994	171.3E
FEB 1	9	12	12.1	15	33	2.7	379.8	3463.8	1887.8	5.0	0.7	18.7	89.1	115.3	14.3	0.999	175.9W
FEB 2	10	5	50.6	12	23	24.9	384.2	3424.7	1866.5	5.1	-0.9	22.0	101.3	108.3	15.3	0.980	163.6W
FEB 3	10	56	50.1	8	41	23.1	388.8	3384.1	1844.3	4.9	-2.4	24.0	113.4	109.2	16.3	0.940	151.5W
FEB 4	11	45	32.3	4	40	58.7	393.3	3345.0	1823.0	4.4	-3.7	24.7	125.5	110.0	17.3	0.882	139.8W
FEB 5	12	32	31.6	0	34	16.2	397.4	3310.3	1804.1	3.6	-4.9	24.3	137.7	110.3	18.3	0.811	128.4W
FEB 6	13	18	28.1	-3	-28	-44.1	400.8	3282.5	1788.9	2.7	-5.8	22.9	149.8	109.8	19.3	0.730	117.2W
FEB 7	14	4	3.0	-7	-19	-40.6	403.2	3263.3	1778.5	1.5	-6.4	20.6	162.0	108.6	20.3	0.641	106.2W
FEB 8	14	49	55.8	-10	-51	-11.1	404.3	3254.1	1773.5	0.3	-6.8	17.4	174.1	106.6	21.3	0.548	95.4W
FEB 9	15	36	41.8	-13	-56	-14.3	404.1	3255.5	1774.3	-1.0	-6.9	13.4	186.3	104.0	22.3	0.454	84.6W
FEB 10	16	24	49.5	-16	-27	-41.2	402.6	3267.5	1780.8	-2.2	-6.6	8.9	198.5	100.8	23.3	0.361	73.7W
FEB 11	17	14	36.8	-18	-18	-5.5	400.0	3289.3	1792.7	-3.3	-6.1	3.8	210.7	96.9	24.3	0.272	62.7W
FEB 12	18	6	8.1	-19	-20	-2.0	396.3	3319.7	1809.2	-4.2	-5.3	358.4	222.8	92.7	25.3	0.189	51.5W
FEB 13	18	59	11.8	-19	-26	-55.2	391.9	3356.7	1829.4	-4.9	-4.3	352.9	235.0	88.1	26.3	0.117	40.0W
FEB 14	19	53	22.3	-18	-34	-15.0	387.2	3397.6	1851.7	-5.3	-3.0	347.7	247.2	83.4	27.3	0.059	28.1W
FEB 15	20	48	6.2	-16	-40	-57.1	382.5	3439.5	1874.5	-5.4	-1.5	343.0	259.4	78.5	28.3	0.019	16.0W
FEB 16	21	42	51.5	-13	-50	-21.6	378.2	3479.1	1896.1	-5.1	0.1	339.3	271.6	69.0	29.3	0.001	3.5W
FEB 17	22	37	16.9	-10	-10	-26.5	374.5	3513.5	1914.9	-4.6	1.7	336.7	283.8	256.5	0.7	0.007	9.3E
FEB 18	23	31	17.2	-5	-53	-13.0	371.6	3540.3	1929.5	-3.8	3.3	335.4	296.0	253.0	1.7	0.038	22.3E
FEB 19	0	25	2.7	1	13	-39.3	369.7	3558.3	1939.3	-2.8	4.6	335.5	308.2	251.7	2.7	0.094	35.5E
FEB 20	1	18	55.9	3	31	36.3	368.8	3567.4	1944.2	-1.7	5.7	337.1	320.4	251.8	3.7	0.171	48.8E
FEB 21	2	13	24.5	8	5	24.2	368.7	3568.2	1944.7	-0.5	6.4	340.0	332.6	253.2	4.7	0.267	62.1E
FEB 22	3	8	53.4	12	11	0.9	369.3	3562.3	1941.4	0.7	6.8	344.2	344.8	255.6	5.7	0.375	75.3E
FEB 23	4	5	36.5	15	33	2.0	370.5	3551.0	1935.3	1.7	6.7	349.3	356.9	259.1	6.7	0.488	88.5E
FEB 24	5	3	28.9	17	58	25.4	372.1	3535.5	1926.9	2.7	6.2	355.1	9.1	263.4	7.7	0.601	101.6E
FEB 25	6	2	3.2	19	17	50.7	374.1	3516.8	1916.6	3.5	5.3	1.2	21.3	268.3	8.7	0.708	114.5E
FEB 26	7	0	33.3	19	26	59.1	376.4	3495.1	1904.8	4.1	4.1	7.2	33.4	273.5	9.7	0.804	127.3E
FEB 27	7	58	5.6	18	27	19.0	379.1	3470.6	1891.5	4.5	2.7	12.7	45.6	278.7	10.7	0.883	139.9E
FEB 28	8	53	54.3	16	25	45.8	382.1	3443.4	1876.6	4.8	1.2	17.4	57.7	284.0	11.7	0.943	152.3E
MAR 1	9	47	31.8	13	33	17.1	385.4	3413.9	1860.6	4.7	-0.3	21.0	69.9	290.2	12.7	0.982	164.6E
MAR 2	10	38	52.3	10	2	56.8	388.9	3382.8	1843.7	4.5	-1.9	23.4	82.0	313.9	13.7	0.999	176.3E
MAR 3	11	28	8.5	6	8	10.6	392.6	3351.5	1826.6	4.1	-3.3	24.6	94.1	96.7			

Date (0 DT)	RA (Mean)			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
APR 1	12	47	57.1	0-52-41.4	399.7	3291.2	1793.7	3.1	-5.2	23.9	87.4	30.9	14.2	0.999	176.0W
APR 2	13	33	52.2	-4-55-53.2	402.1	3271.6	1783.0	2.1	-6.0	22.1	99.6	90.7	15.2	0.988	167.4W
APR 3	14	19	47.7	-8-44-48.2	404.0	3256.4	1774.7	1.0	-6.5	19.5	111.7	97.6	16.2	0.959	156.7W
APR 4	15	6	11.0	-12-11-2.2	405.2	3246.7	1769.5	-0.2	-6.7	16.0	123.9	98.4	17.2	0.914	145.9W
APR 5	15	53	24.5	-15-6-49.5	405.6	3243.8	1767.9	-1.5	-6.6	11.8	136.1	97.0	18.2	0.855	135.1W
APR 6	16	41	43.7	-17-25-0.7	405.0	3248.7	1770.6	-2.8	-6.2	7.1	148.2	94.4	19.2	0.783	124.3W
APR 7	17	31	15.6	-18-59-5.6	403.3	3262.5	1778.1	-4.0	-5.6	2.0	160.4	91.0	20.2	0.700	113.5W
APR 8	18	21	58.5	-19-43-26.1	400.4	3285.9	1790.8	-5.2	-4.7	356.7	172.6	87.0	21.2	0.610	102.5W
APR 9	19	13	42.5	-19-33-37.5	396.4	3319.0	1808.8	-6.2	-3.6	351.5	184.8	82.7	22.2	0.513	91.3W
APR 10	20	6	13.0	-18-26-57.6	391.4	3361.2	1831.9	-7.0	-2.3	346.5	197.0	78.3	23.2	0.414	79.9W
APR 11	20	59	14.9	-16-22-59.6	385.7	3411.3	1859.1	-7.4	-0.9	342.2	209.2	74.0	24.2	0.315	68.1W
APR 12	21	52	38.2	-13-24-6.2	379.5	3466.5	1889.2	-7.5	0.6	338.7	221.4	69.9	25.2	0.221	55.9W
APR 13	22	46	21.8	-9-36-3.2	373.4	3523.2	1920.1	-7.0	2.2	336.4	233.6	66.0	26.2	0.137	43.3W
APR 14	23	40	34.8	-5-8-31.2	367.9	3576.5	1949.2	-6.1	3.6	335.3	245.9	61.8	27.2	0.068	30.2W
APR 15	0	35	35.7	0-15-26.2	363.3	3621.1	1973.5	-4.7	4.9	335.8	258.1	54.3	28.2	0.022	16.9W
APR 16	1	31	47.3	4 45 8.8	360.3	3651.9	1990.3	-2.9	5.9	337.8	270.3	8.2	29.2	0.002	5.2W
APR 17	2	29	29.2	9 32 5.2	358.9	3665.4	1997.6	-1.0	6.4	341.2	282.5	274.3	0.8	0.012	12.6E
APR 18	3	28	48.2	13 43 15.9	359.4	3660.4	1994.9	1.1	6.5	346.0	294.8	266.1	1.8	0.052	26.2E
APR 19	4	29	28.4	16 58 40.3	361.6	3638.4	1982.9	3.0	6.2	351.7	307.0	266.9	2.8	0.118	40.1E
APR 20	5	30	46.8	19 3 43.1	365.2	3603.0	1963.6	4.6	5.4	358.0	319.2	270.2	3.8	0.205	53.7E
APR 21	6	31	40.2	19 51 38.2	369.7	3558.9	1939.6	5.8	4.3	4.3	331.4	274.6	4.8	0.306	67.0E
APR 22	7	31	2.1	19 23 55.3	374.8	3510.7	1913.3	6.6	3.0	10.2	343.6	279.3	5.8	0.414	80.0E
APR 23	8	28	1.8	17 48 42.2	380.0	3462.4	1887.0	6.9	1.6	15.4	355.9	283.8	6.8	0.524	92.6E
APR 24	9	22	15.0	15 17 57.8	385.0	3416.9	1862.2	6.9	0.1	19.4	8.0	287.9	7.8	0.629	104.8E
APR 25	10	13	44.5	12 4 54.2	389.7	3376.0	1839.9	6.5	-1.4	22.3	20.2	291.4	8.8	0.725	116.7E
APR 26	11	2	52.2	8 22 16.7	393.9	3340.4	1820.5	5.9	-2.8	24.1	32.4	294.3	9.8	0.810	128.3E
APR 27	11	50	11.1	4 21 42.4	397.4	3310.4	1804.2	5.1	-4.0	24.7	44.6	297.0	10.8	0.881	139.6E
APR 28	12	36	18.8	0 13 39.1	400.4	3285.8	1790.8	4.2	-5.0	24.2	56.8	300.0	11.8	0.937	150.7E
APR 29	13	21	52.5	-3-52-19.0	402.8	3266.5	1780.2	3.1	-5.8	22.7	69.0	305.3	12.8	0.975	161.6E
APR 30	14	7	26.5	-7-47-13.2	404.5	3252.1	1772.4	2.0	-6.3	20.2	81.1	324.7	13.8	0.995	171.7E
MAY 1	14	53	30.3	-11-22-27.2	405.7	3242.7	1767.3	0.8	-6.6	17.0	93.3	56.7	14.8	0.997	173.5W
MAY 2	15	40	26.6	-14-29-44.7	406.3	3238.5	1765.0	-0.4	-6.5	13.0	105.5	85.4	15.8	0.981	164.2W
MAY 3	16	28	29.2	-17 -1-16.0	406.1	3239.9	1765.8	-1.7	-6.2	8.4	117.7	89.4	16.8	0.948	153.6W
MAY 4	17	17	42.4	-18-49-55.6	405.1	3247.7	1770.0	-3.0	-5.6	3.4	129.9	88.6	17.8	0.899	142.9W
MAY 5	18	7	59.8	-19-49-47.1	403.3	3262.6	1778.1	-4.3	-4.7	358.1	142.0	86.0	18.8	0.836	132.1W
MAY 6	18	59	7.0	-19-56-29.9	400.5	3285.3	1790.5	-5.4	-3.7	352.9	154.2	82.5	19.8	0.759	121.1W
MAY 7	19	50	45.7	-19 -7-43.0	396.7	3316.3	1807.4	-6.5	-2.4	347.9	166.4	78.7	20.8	0.672	109.9W
MAY 8	20	42	38.9	-17-23-18.2	392.1	3355.7	1828.8	-7.3	-1.1	343.5	178.6	74.9	21.8	0.575	98.5W
MAY 9	21	34	37.3	-14-45-25.8	386.6	3402.8	1854.5	-7.8	0.4	339.8	190.8	71.3	22.8	0.473	86.8W
MAY 10	22	26	42.6	-11-18-39.7	380.7	3456.2	1883.6	-7.9	1.9	337.1	203.1	68.2	23.8	0.369	74.7W
MAY 11	23	19	9.0	-7-10-11.3	374.5	3513.0	1914.6	-7.5	3.3	335.6	215.3	65.6	24.8	0.267	62.1W
MAY 12	0	12	21.9	-2-30-18.1	368.6	3569.1	1945.1	-6.7	4.6	335.4	227.5	63.5	25.8	0.173	49.1W
MAY 13	1	6	54.1	2 26 59.2	363.5	3619.3	1972.5	-5.4	5.6	336.7	239.7	61.5	26.8	0.094	35.7W
MAY 14	2	3	18.8	7 23 35.8	359.7	3658.1	1993.6	-3.6	6.3	339.5	252.0	57.9	27.8	0.037	22.0W
MAY 15	3	1	59.2	11 57 56.4	357.5	3680.3	2005.8	-1.5	6.5	343.7	264.2	39.3	28.8	0.006	8.8W
MAY 16	4	2	55.8	15 47 2.5	357.2	3683.0	2007.2	0.7	6.3	349.1	276.5	292.8	0.5	0.006	8.6E
MAY 17	5	5	34.2	18 30 22.1	358.9	3665.7	1997.8	2.8	5.6	355.4	288.7	275.5	1.5	0.036	21.8E
MAY 18	6	8	44.0	19 54 19.6	362.3	3631.2	1979.0	4.6	4.6	2.0	301.0	275.8	2.5	0.094	35.6E
MAY 19	7	10	55.3	19 55 20.4	367.1	3584.0	1953.3	6.0	3.2	8.3	313.2	279.1	3.5	0.173	49.1E
MAY 20	8	10	47.3	18 39 42.4	372.7	3529.7	1923.7	7.0	1.7	13.9	325.4	283.1	4.5	0.268	62.2E
MAY 21	9	7	30.9	16 20 24.9	378.7	3473.7	1893.1	7.4	0.2	18.4	337.7	286.9	5.5	0.371	74.9E
MAY 22	10	0	55.1	13 13 1.9	384.7	3420.0	1863.9	7.4	-1.3	21.7	349.9	290.2	6.5	0.477	87.2E
MAY 23	10	51	19.2	9 32 36.1	390.2	3371.7	1837.6	7.1	-2.7	23.8	2.1	292.7	7.5	0.580	99.1E
MAY 24	11	39	20.0	5 32 13.5	395.0	3330.4	1815.1	6.4	-4.0	24.6	14.3	294.5	8.5	0.677	110.6E
MAY 25	12	25	41.8	1 22 55.2	399.0	3297.1	1796.9	5.5	-5.0	24.4	26.5	295.7	9.5	0.765	121.9E
MAY 26	13	11	9.5	-2-45-52.5	402.1	3271.6	1783.0	4.5	-5.8	23.1	38.7	296.5	10.5	0.842	133.0E
MAY 27	13	56	24.7	-6-45-38.6	404.4	3253.6	1773.2	3.3	-6.3	20.9	50.9	297.1	11.5	0.904	143.9E
MAY 28	14	42	3.8	-10-28-14.3	405.7	3242.5	1767.2	2.1	-6.6	17.8	63.1	298.3	12.5	0.952	154.7E
MAY 29	15	28	35.5	-13-45-34.2	406.4	3237.7	1764.5	0.8	-6.6	14.0	75.3	303.4	13.5	0.983	165.2E
MAY 30	16	16	18.5	-16-29-35.1	406.3	3238.5	1765.0	-0.5	-6.2	9.5	87.5	337.3	14.5	0.998	174.4E
MAY 31	17	5	19.6	-18-32-34.6	405.5	3244.7	1768.4	-1.7	-5.7	4.6	99.7	67.1	15.5	0.994	171.0W
JUN 1	17	55	32.4	-19-47-46.8	404.0	3256.2	1774.6	-3.0	-4.8	359.4	111.8	79.9	16.5	0.972	160.8W
JUN 2	18	46	38.7	-20-10-6.8	402.0	3273.1	1783.8	-4.1	-3.8	354.1	124.0	80.5	17.5	0.933	150.0W
JUN 3	19	38	13.4	-19-36-49.3	399.2	3295.7	1796.2	-5.2	-2.5	349.1	136.2	78.3	18.5	0.877	138.9W
JUN 4	20	29	51.5	-18 -7-50.6	395.7	3324.4	1811.8	-6.2	-1.2	3					

1999 MOON

Geocentric Planetary Ephemeris

1999 MOON

Date (0 DT)	RA [Mean]			Dec (° ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(l b c)												
JUL 1	20 17 45.5	-18-40-16.0		396.2	3320.6	1809.7	-4.8	-1.3	345.5	118.5	74.8	17.2	0.958	156.3W	
JUL 2	21 9 32.7	-16-31-3.1		392.9	3348.5	1824.9	-5.6	0.1	341.4	130.7	73.2	18.2	0.909	144.8W	
JUL 3	22 0 47.7	-13-32-17.9		389.3	3379.7	1841.9	-6.1	1.6	338.3	142.9	71.0	19.2	0.842	133.1W	
JUL 4	22 51 31.9	-9-51-32.9		385.3	3414.2	1860.8	-6.4	3.0	336.2	155.1	69.1	20.2	0.759	121.1W	
JUL 5	23 42 3.2	-5-38-6.8		381.2	3451.6	1881.1	-6.4	4.3	335.4	167.3	67.8	21.2	0.663	108.9W	
JUL 6	0 32 53.6	-1-2-50.1		376.9	3491.1	1902.6	-6.1	5.4	335.8	179.5	67.2	22.2	0.557	96.4W	
JUL 7	1 24 44.2	3 41 44.4		372.6	3531.0	1924.4	-5.4	6.2	337.5	191.7	67.6	23.2	0.445	83.5W	
JUL 8	2 18 19.7	8 20 55.2		368.7	3568.8	1945.0	-4.4	6.7	340.5	203.9	69.0	24.2	0.333	70.4W	
JUL 9	3 14 18.9	12 37 33.1		365.3	3601.4	1962.8	-3.1	6.7	344.8	216.2	71.3	25.2	0.228	56.9W	
JUL 10	4 13 2.6	16 12 30.5		362.9	3625.0	1975.6	-1.5	6.3	350.2	228.4	74.4	26.2	0.136	43.2W	
JUL 11	5 14 18.3	18 46 40.3		361.8	3636.1	1981.7	0.2	5.5	356.3	240.7	77.9	27.2	0.065	29.4W	
JUL 12	6 17 11.4	20 4 39.5		362.2	3632.3	1979.6	1.9	4.3	2.9	252.9	79.7	28.2	0.018	15.5W	
JUL 13	7 20 11.9	19 59 5.5		364.2	3612.9	1969.0	3.5	2.8	9.2	265.2	40.5	29.2	0.000	2.6W	
JUL 14	8 21 41.6	18 32 59.4		367.6	3579.3	1950.7	4.8	1.1	14.8	277.4	287.4	0.9	0.011	12.2E	
JUL 15	9 20 25.5	15 58 31.5		372.2	3534.8	1926.4	5.8	-0.5	19.3	289.7	286.9	1.9	0.049	25.4E	
JUL 16	10 15 49.8	12 32 59.2		377.6	3483.9	1898.7	6.4	-2.2	22.4	301.9	288.8	2.9	0.108	38.3E	
JUL 17	11 7 59.5	8 34 26.1		383.4	3431.2	1870.0	6.6	-3.6	24.2	314.2	290.6	3.9	0.184	50.8E	
JUL 18	11 57 26.0	4 18 54.2		389.1	3380.9	1842.6	6.4	-4.8	24.6	326.4	291.6	4.9	0.272	62.8E	
JUL 19	12 44 53.3	0 0-32.8		394.3	3336.5	1818.4	5.8	-5.8	23.9	338.7	291.8	5.9	0.367	74.5E	
JUL 20	13 31 9.4	-4-13-33.9		398.7	3300.1	1798.6	5.0	-6.4	22.1	350.9	291.2	6.9	0.465	85.8E	
JUL 21	14 17 0.4	-8-11-41.1		401.9	3273.2	1783.9	4.0	-6.8	19.5	3.1	289.9	7.9	0.561	96.9E	
JUL 22	15 3 7.9	-11-47-27.3		404.0	3256.3	1774.7	2.8	-6.8	16.1	15.3	287.9	8.9	0.655	107.9E	
JUL 23	15 50 6.0	-14-53-44.5		404.9	3249.4	1770.9	1.5	-6.6	12.0	27.5	285.2	9.9	0.742	118.8E	
JUL 24	16 38 18.8	-17-23-22.1		404.6	3251.6	1772.1	0.2	-6.1	7.3	39.7	281.9	10.9	0.820	129.6E	
JUL 25	17 27 56.8	-19-9-11.5		403.3	3262.1	1777.9	-1.0	-5.3	2.2	51.9	278.2	11.9	0.887	140.6E	
JUL 26	18 18 55.7	-20-4-38.4		401.2	3279.5	1787.3	-2.1	-4.3	356.9	64.1	274.2	12.9	0.940	151.7E	
JUL 27	19 10 55.7	-20-4-38.3		398.4	3302.2	1799.7	-3.1	-3.1	351.7	76.3	270.7	13.9	0.978	162.9E	
JUL 28	20 3 27.1	-19-6-39.5		395.2	3328.7	1814.2	-4.0	-1.7	346.7	88.5	271.2	14.9	0.998	174.4E	
JUL 29	20 55 57.9	-17-11-30.3		391.8	3357.6	1829.9	-4.6	-0.2	342.4	100.7	72.8	15.9	0.997	173.9W	
JUL 30	21 48 3.5	-14-23-32.3		388.4	3387.6	1846.2	-5.1	1.3	339.0	112.9	73.7	16.9	0.976	162.0W	
JUL 31	22 39 33.5	-10-50-18.5		384.9	3417.7	1862.7	-5.3	2.8	336.6	125.1	71.8	17.9	0.933	149.9W	
AUG 1	23 30 34.2	-6-41-49.5		381.6	3447.4	1878.8	-5.2	4.1	335.5	137.3	70.3	18.9	0.870	137.6W	
AUG 2	0 21 27.5	-2-9-51.9		378.5	3476.1	1894.5	-4.9	5.3	335.6	149.5	69.5	19.9	0.788	125.1W	
AUG 3	1 12 47.0	2 32 28.2		375.5	3503.6	1909.5	-4.4	6.1	337.0	161.7	69.7	20.9	0.692	112.4W	
AUG 4	2 5 12.5	7 10 52.8		372.8	3529.2	1923.4	-3.6	6.7	339.7	173.9	70.9	21.9	0.584	99.5W	
AUG 5	2 59 23.0	11 29 48.9		370.4	3552.1	1935.9	-2.7	6.8	343.6	186.1	73.2	22.9	0.470	86.4W	
AUG 6	3 55 47.2	15 12 39.5		368.5	3570.7	1946.0	-1.5	6.5	348.6	198.4	76.6	23.9	0.356	73.2W	
AUG 7	4 54 31.5	18 2 39.1		367.2	3583.3	1952.9	-0.3	5.8	354.3	210.6	80.9	24.9	0.249	59.8W	
AUG 8	5 55 9.9	19 44 59.6		366.7	3587.8	1955.3	1.0	4.7	0.6	222.8	86.0	25.9	0.155	46.3W	
AUG 9	6 56 41.9	20 9 53.8		367.3	3582.4	1952.4	2.2	3.3	6.9	235.1	91.5	26.9	0.080	32.8W	
AUG 10	7 57 46.1	19 15 24.5		368.9	3566.3	1943.7	3.4	1.8	12.8	247.3	97.3	27.9	0.028	19.3W	
AUG 11	8 57 4.5	17 8 13.4		371.7	3539.7	1929.1	4.4	0.1	17.7	259.6	105.1	28.9	0.003	6.1W	
AUG 12	9 53 45.6	14 1 53.1		375.5	3504.1	1909.7	5.1	-1.6	21.3	271.8	280.2	0.5	0.004	7.0E	
AUG 13	10 47 32.0	10 13 21.6		380.0	3462.2	1886.9	5.5	-3.1	23.6	284.1	285.6	1.5	0.029	19.7E	
AUG 14	11 38 36.4	5 59 45.6		385.0	3417.5	1862.5	5.6	-4.4	24.5	296.3	288.0	2.5	0.077	32.1E	
AUG 15	12 27 29.9	1 36 17.5		390.0	3373.4	1838.5	5.4	-5.5	24.2	308.5	289.0	3.5	0.141	44.1E	
AUG 16	13 14 52.8	2 44-27.6		394.7	3333.2	1816.6	4.9	-6.2	22.8	320.8	288.9	4.5	0.219	55.7E	
AUG 17	14 1 27.5	-6-52-20.0		398.7	3299.7	1798.3	4.1	-6.7	20.5	333.0	288.0	5.5	0.307	67.1E	
AUG 18	14 47 54.4	-10-38-57.0		401.8	3274.6	1784.7	3.1	-6.9	17.3	345.2	286.2	6.5	0.399	78.2E	
AUG 19	15 34 49.1	-13-56-59.6		403.6	3259.4	1776.4	1.9	-6.7	13.3	357.5	283.6	7.5	0.494	89.2E	
AUG 20	16 22 39.6	-16-39-38.3		404.3	3254.4	1773.7	0.7	-6.3	8.8	9.7	280.3	8.5	0.589	100.1E	
AUG 21	17 11 43.7	-18-40-16.1		403.6	3259.7	1776.5	-0.6	-5.6	3.9	21.9	276.4	9.5	0.680	111.0E	
AUG 22	18 2 6.7	-19-52-35.7		401.8	3274.6	1784.6	-1.8	-4.6	358.6	34.1	272.0	10.5	0.766	121.9E	
AUG 23	18 53 40.0	-20-11-12.0		399.0	3297.7	1797.3	-2.9	-3.5	353.3	46.3	267.2	11.5	0.842	133.1E	
AUG 24	19 46 3.4	-19-32-23.4		395.4	3327.6	1813.5	-3.8	-2.1	348.3	58.5	262.1	12.5	0.907	144.5E	
AUG 25	20 38 50.0	-17-55-8.2		391.3	3361.9	1832.2	-4.5	-0.7	343.7	70.7	256.4	13.5	0.957	156.1E	
AUG 26	21 31 34.1	-15-21-48.0		387.1	3398.4	1852.1	-4.9	0.9	340.0	82.8	248.4	14.5	0.989	167.9E	
AUG 27	22 23 59.2	-11-58-22.8		383.1	3434.4	1871.8	-5.0	2.4	337.2	95.0	155.7	15.5	1.000	178.2W	
AUG 28	23 16 2.3	-7-54-16.4		379.4	3467.9	1890.0	-4.8	3.8	335.7	107.2	79.9	16.5	0.987	167.1W	
AUG 29	0 7 54.9	-3-21-41.3		376.2	3497.0	1905.9	-4.3	5.0	335.5	119.4	74.7	17.5	0.951	154.5W	
AUG 30	1 0 0.8	1 25 4.1		373.7	3520.6	1918.7	-3.5	5.9	336.6	131.6	73.2	18.5	0.892	141.6W	
AUG 31	1 52 51.1	6 10 16.6		371.8	3538.1	1928.3	-2.6	6.5	339.0	143.8	73.5	19.5	0.812	128.6W	
SEP 1	2 46 58.0	10 37 25.4		370.6	3549.9	1934.7	-1.6	6.7	342.7	155.9	75.2	20.5	0.716	115.4W	
SEP 2	3 42 46.3	14 29 51.1		370.0	3556.2	1938.1	-0.5	6.5	347.4	168.1	78.1	21.5	0.607	102.3W	
SEP 3	4 40 24.4	17 31 43.7		369.8	3557.4	1938.8	0.5	5.9	352.9	180.3	82.1	22.5	0.493	89.1W	
SEP 4	5 39 35.9	19 29 32.8		370.2	3553.8	1936.8	1.5	4.9	359.0	192.6	87.0	23.5	0.379	75.9W	
SEP 5	6 39 37.2	20 14 7.5		371.1	3545.2	1932.1	2.5	3.7	5.2	204.8	92.4				

Date (0 DT)		RA (Mean)			Dec (d ' ")	Dist (1000*Km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		(h	m	s)					l	b	c					
OCT 1	5	26	4.2	19 19	33.4	368.7	3568.3	1944.7	2.6	5.0	357.7	162.0	87.7	21.1	0.634	105.4W
OCT 2	6	26	12.6	20 21	13.0	370.9	3546.9	1933.1	3.6	3.8	3.9	174.2	92.7	22.1	0.520	92.2W
OCT 3	7	25	51.1	20 6	9.1	373.6	3521.9	1919.5	4.3	2.3	9.8	186.4	98.0	23.1	0.408	79.2W
OCT 4	8	24	0.9	18 38	36.1	376.5	3494.7	1904.6	4.9	0.8	15.0	198.6	103.2	24.1	0.301	66.5W
OCT 5	9	20	1.2	16 8	13.3	379.6	3466.2	1889.1	5.2	-0.8	19.3	210.8	108.1	25.1	0.206	53.9W
OCT 6	10	13	36.0	12 47	58.6	382.8	3437.0	1873.2	5.3	-2.3	22.3	223.0	112.8	26.1	0.127	41.6W
OCT 7	11	4	52.3	8 52	7.1	386.1	3407.3	1857.0	5.3	-3.6	24.0	235.2	117.6	27.1	0.065	29.5W
OCT 8	11	54	13.1	4 34	46.7	389.5	3377.4	1840.7	5.1	-4.8	24.5	247.4	124.9	28.1	0.024	17.8W
OCT 9	12	42	10.0	0 9	10.9	393.0	3348.1	1824.7	4.7	-5.7	23.8	259.6	150.5	29.1	0.004	7.1W
OCT 10	13	29	17.3	-4-12	-39.8	396.3	3320.0	1809.4	4.1	-6.3	22.1	271.8	253.1	0.5	0.004	7.6E
OCT 11	14	16	7.8	-8-20	-1.1	399.3	3294.5	1795.5	3.4	-6.6	19.4	284.1	273.7	1.5	0.025	18.1E
OCT 12	15	3	10.2	-12-3	-22.3	402.0	3273.0	1783.8	2.4	-6.6	16.0	296.3	277.1	2.5	0.063	29.0E
OCT 13	15	50	47.2	-15-14	-20.9	404.0	3256.9	1775.0	1.3	-6.3	11.8	308.5	276.6	3.5	0.117	39.9E
OCT 14	16	39	13.2	-17-45	-39.3	405.1	3247.9	1770.1	0.1	-5.7	7.1	320.7	274.4	4.5	0.184	50.7E
OCT 15	17	28	33.7	-19-31	-6.5	405.2	3247.3	1769.8	-1.3	-4.9	2.1	332.9	271.1	5.5	0.262	61.5E
OCT 16	18	18	45.1	-20-25	-45.8	404.1	3256.1	1774.6	-2.6	-3.8	356.9	345.1	267.2	6.5	0.349	72.2E
OCT 17	19	9	36.3	-20-26	-6.7	401.7	3274.9	1784.8	-4.0	-2.7	351.7	357.3	262.9	7.5	0.441	83.1E
OCT 18	20	0	52.7	-19-30	-20.1	398.2	3304.0	1800.7	-5.1	-1.3	346.9	9.5	258.5	8.5	0.538	94.2E
OCT 19	20	52	20.6	-17-38	-32.5	393.6	3342.6	1821.7	-6.0	0.1	342.7	21.6	254.2	9.5	0.634	105.5E
OCT 20	21	43	52.4	-14-53	-0.1	388.2	3389.3	1847.2	-6.6	1.5	339.2	33.8	250.1	10.5	0.729	117.1E
OCT 21	22	35	30.0	-11-18	-26.6	382.3	3441.7	1875.7	-6.8	2.9	336.8	46.0	246.4	11.5	0.816	129.1E
OCT 22	23	27	26.1	-7-2	-26.7	376.3	3496.1	1905.4	-6.5	4.2	335.6	58.1	242.7	12.5	0.892	141.5E
OCT 23	0	20	3.4	-2-15	-55.8	370.8	3548.1	1933.7	-5.7	5.3	335.7	70.3	238.1	13.5	0.951	154.3E
OCT 24	1	13	51.3	2 46	25.7	366.2	3592.7	1958.0	-4.5	6.1	337.2	82.4	226.9	14.5	0.987	167.1E
OCT 25	2	9	20.3	7 46	14.3	362.9	3625.3	1975.8	-2.9	6.5	340.1	94.6	141.4	15.5	0.998	174.7W
OCT 26	3	6	52.9	12 22	19.0	361.2	3642.6	1985.2	-1.1	6.4	344.3	106.7	91.2	16.5	0.980	163.6W
OCT 27	4	6	32.1	16 12	49.1	361.1	3643.3	1985.6	0.8	6.0	349.7	118.9	87.1	17.5	0.933	150.0W
OCT 28	5	7	51.8	18 58	29.9	362.6	3628.4	1977.5	2.5	5.1	355.8	131.0	88.9	18.5	0.862	136.3W
OCT 29	6	9	53.9	20 26	18.2	365.4	3601.0	1962.5	4.0	3.9	2.2	143.2	92.9	19.5	0.771	122.7W
OCT 30	7	11	20.8	20 31	51.9	369.1	3564.9	1942.8	5.1	2.4	8.4	155.3	97.7	20.5	0.667	109.4W
OCT 31	8	10	58.3	19 19	37.9	373.3	3524.1	1920.6	5.9	0.9	13.9	167.5	102.5	21.5	0.557	96.4W
NOV 1	9	7	56.8	17 0	36.6	377.8	3482.0	1897.7	6.4	-0.7	18.4	179.7	107.0	22.5	0.447	83.7W
NOV 2	10	1	59.8	13 49	7.2	382.3	3441.3	1875.5	6.6	-2.2	21.7	191.9	110.8	23.5	0.342	71.4W
NOV 3	10	53	19.3	10 0	3.5	386.6	3403.3	1854.8	6.5	-3.6	23.7	204.1	114.0	24.5	0.246	59.3W
NOV 4	11	42	25.5	5 47	22.9	390.5	3368.9	1836.1	6.1	-4.7	24.5	216.2	116.7	25.5	0.163	47.5W
NOV 5	12	29	57.2	1 23	39.0	394.1	3338.3	1819.4	5.6	-5.6	24.1	228.4	119.2	26.5	0.096	36.0W
NOV 6	13	16	34.9	-2-59	-50.4	397.3	3311.5	1804.8	4.9	-6.2	22.6	240.6	122.5	27.5	0.046	24.7W
NOV 7	14	2	56.3	-7-12	-45.5	400.1	3288.4	1792.2	4.1	-6.5	20.2	252.8	130.6	28.5	0.015	13.9W
NOV 8	14	49	33.5	-11-5	-29.6	402.4	3269.2	1781.7	3.2	-6.5	17.0	265.0	177.2	29.5	0.002	5.3W
NOV 9	15	36	50.5	-14-29	-5.0	404.3	3254.0	1773.4	2.1	-6.3	13.0	277.2	256.5	0.8	0.008	10.4E
NOV 10	16	25	1.9	-17-15	-20.1	405.6	3243.7	1767.8	0.9	-5.7	8.5	289.4	267.6	1.8	0.032	20.6E
NOV 11	17	14	10.7	-19-17	-8.3	406.2	3238.9	1765.2	-0.5	-4.9	3.5	301.6	268.4	2.8	0.073	31.2E
NOV 12	18	4	9.0	-20-28	-51.5	405.9	3240.9	1766.3	-1.8	-3.9	358.3	313.8	266.3	3.8	0.129	41.9E
NOV 13	18	54	40.5	-20-46	-43.9	404.7	3250.5	1771.6	-3.2	-2.7	353.2	326.0	263.0	4.8	0.198	52.6E
NOV 14	19	45	25.1	-20-9	-6.3	402.5	3268.8	1781.5	-4.6	-1.4	348.3	338.2	259.3	5.8	0.278	63.5E
NOV 15	20	36	5.2	-18-36	-27.2	399.1	3296.4	1796.5	-5.8	-0.1	343.9	350.4	255.5	6.8	0.367	74.5E
NOV 16	21	26	31.4	-16-11	-12.2	394.7	3333.4	1816.7	-6.8	1.3	340.3	2.6	251.9	7.8	0.464	85.7E
NOV 17	22	16	46.5	-12-57	-33.0	389.3	3379.3	1841.7	-7.4	2.7	337.6	14.7	248.7	8.8	0.564	97.2E
NOV 18	23	7	6.0	-9-1	-27.4	383.3	3432.6	1870.8	-7.7	4.0	335.9	26.9	246.1	9.8	0.665	109.1E
NOV 19	23	57	57.7	-4-31	0.0	376.9	3490.6	1902.4	-7.5	5.1	335.5	39.0	244.1	10.8	0.762	121.5E
NOV 20	0	49	58.8	0 22	54.3	370.7	3549.1	1934.2	-6.7	5.9	336.4	51.2	242.6	11.8	0.850	134.3E
NOV 21	1	43	51.1	5 25	38.8	365.2	3602.9	1963.6	-5.5	6.5	338.6	63.3	241.1	12.8	0.922	147.5E
NOV 22	2	40	12.9	10 18	23.2	360.8	3646.3	1987.2	-3.8	6.5	342.3	75.5	237.4	13.8	0.973	161.0E
NOV 23	3	39	27.4	14 38	39.9	358.1	3674.0	2002.3	-1.8	6.2	347.2	87.6	208.3	14.8	0.997	173.7E
NOV 24	4	41	25.8	18 2	55.8	357.3	3682.4	2006.9	0.4	5.4	353.2	99.7	104.3	15.8	0.991	169.1W
NOV 25	5	45	15.9	20 11	7.4	358.4	3670.7	2000.5	2.4	4.2	359.7	111.9	95.6	16.8	0.955	155.5W
NOV 26	6	49	25.8	20 51	50.8	361.3	3641.2	1984.4	4.2	2.7	6.3	124.0	97.5	17.8	0.893	141.7W
NOV 27	7	52	9.9	20 5	17.2	365.6	3598.2	1961.0	5.7	1.1	12.3	136.1	101.4	18.8	0.809	128.1W
NOV 28	8	52	4.6	18 2	0.3	370.9	3547.2	1933.2	6.7	-0.6	17.3	148.3	105.5	19.8	0.711	114.8W
NOV 29	9	48	29.8	14 58	32.3	376.6	3493.4	1903.9	7.3	-2.1	21.0	160.4	109.2	20.8	0.606	102.0W
NOV 30	10	41	28.2	11 12	44.0	382.3	3441.0	1875.3	7.5	-3.5	23.3	172.6	112.0	21.8	0.498	89.7W
DEC 1	11	31	31.2	7 0	48.9	387.8	3393.0	1849.2	7.4	-4.7	24.4	184.8	114.1	22.8	0.394	77.7W
DEC 2	12	19	24.3	2 36	26.4	392.6	3351.1	1826.3	6.9	-5.6	24.3	196.9	115.3	23.8	0.298	66.0W
DEC 3	13	5	56.7	-1-49	-2.3	396.7	3									

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ° ')	(d ° ')				l	b	c					
JAN 1	14 26 38.6	-8-59-29.5		400.9	3281.5	1788.4	5.6	-6.8	18.6	201.7	111.4	24.1	0.272	62.7W
JAN 2	15 13 3.3	-12-41-5.1		403.7	3258.9	1776.1	4.5	-6.6	15.0	213.9	109.4	25.1	0.191	51.7W
JAN 3	16 0 17.5	-15-50-14.7		405.5	3244.7	1768.4	3.2	-6.1	10.8	226.1	106.9	26.1	0.123	40.9W
JAN 4	16 48 39.1	-18-19-36.7		406.3	3238.0	1764.7	1.9	-5.3	6.0	238.2	104.1	27.1	0.068	30.1W
JAN 5	17 38 11.2	-20-2-19.8		406.3	3237.9	1764.6	0.5	-4.3	1.0	250.4	101.6	28.1	0.028	19.3W
JAN 6	18 28 40.9	-20-52-44.3		405.6	3243.4	1767.7	-0.8	-3.1	355.8	262.6	103.2	29.1	0.006	8.6W
JAN 7	19 19 42.8	-20-47-15.6		404.3	3253.9	1773.4	-2.2	-1.8	350.7	274.8	234.5	0.2	0.001	3.0E
JAN 8	20 10 45.6	-19-45-6.1		402.5	3268.9	1781.6	-3.4	-0.4	346.0	287.0	256.4	1.2	0.014	13.6E
JAN 9	21 1 21.1	-17-48-29.9		400.1	3288.3	1792.1	-4.5	1.0	342.0	299.2	255.4	2.2	0.046	24.6E
JAN 10	21 51 12.3	-15-2-22.9		397.2	3312.2	1805.2	-5.5	2.4	338.9	311.4	253.0	3.2	0.095	35.9E
JAN 11	22 40 18.5	-11-33-42.8		393.8	3340.9	1820.8	-6.3	3.7	336.7	323.5	250.7	4.2	0.162	47.3E
JAN 12	23 28 55.0	-7-30-49.4		389.9	3374.5	1839.1	-6.9	4.9	335.6	335.7	249.0	5.2	0.243	58.9E
JAN 13	0 17 32.3	-3-3-2.5		385.5	3413.2	1860.2	-7.1	5.8	335.7	347.9	248.1	6.2	0.337	70.8E
JAN 14	1 6 51.7	1 39 11.5		380.6	3456.3	1883.7	-7.0	6.5	337.0	0.1	248.1	7.2	0.440	83.0E
JAN 15	1 57 42.2	6 23 47.6		375.6	3502.4	1908.8	-6.6	6.8	339.5	12.2	249.1	8.2	0.549	95.5E
JAN 16	2 50 53.6	10 56 16.7		370.7	3549.1	1934.3	-5.8	6.7	343.2	24.4	251.2	9.2	0.659	108.4E
JAN 17	3 47 7.7	14 59 12.5		366.2	3592.8	1958.1	-4.6	6.2	348.0	36.5	254.4	10.2	0.763	121.6E
JAN 18	4 46 42.7	18 12 42.1		362.5	3629.0	1977.8	-3.1	5.3	353.7	48.6	258.6	11.2	0.856	135.2E
JAN 19	5 49 16.2	20 16 51.6		360.2	3653.1	1990.9	-1.3	4.0	0.2	60.8	263.7	12.2	0.930	149.1E
JAN 20	6 53 35.7	20 56 24.2		359.4	3661.1	1995.3	0.5	2.5	6.7	72.9	268.9	13.2	0.979	163.2E
JAN 21	7 57 52.2	20 5 47.4		360.4	3651.0	1989.8	2.3	0.7	12.8	85.0	269.4	14.2	0.999	177.2E
JAN 22	9 0 15.7	17 51 35.4		363.1	3623.3	1974.7	3.9	-1.1	17.9	97.1	102.3	15.2	0.991	168.9W
JAN 23	9 59 31.8	14 30 14.6		367.4	3581.0	1951.7	5.3	-2.7	21.5	109.3	105.6	16.2	0.954	155.3W
JAN 24	10 55 15.7	10 22 48.5		372.8	3529.0	1923.3	6.3	-4.2	23.7	121.4	108.3	17.2	0.895	142.1W
JAN 25	11 47 43.2	5 49 58.6		378.9	3472.4	1892.5	6.8	-5.4	24.4	133.5	110.1	18.2	0.818	129.3W
JAN 26	12 37 34.1	1 9 17.8		385.1	3416.5	1862.0	7.0	-6.2	23.8	145.7	110.7	19.2	0.728	117.0W
JAN 27	13 25 37.8	-3-25-28.1		390.9	3365.3	1834.1	6.7	-6.7	22.2	157.8	110.4	20.2	0.632	105.2W
JAN 28	14 12 43.6	-7-43-43.2		396.1	3321.6	1810.3	6.1	-6.9	19.5	170.0	109.2	21.2	0.534	93.7W
JAN 29	14 59 36.3	-11-36-59.9		400.2	3287.2	1791.5	5.2	-6.7	16.1	182.1	107.1	22.2	0.437	82.6W
JAN 30	15 46 52.9	-14-58-1.6		403.2	3262.8	1778.3	4.1	-6.3	12.0	194.3	104.3	23.2	0.343	71.6W
JAN 31	16 34 59.7	-17-40-6.1		405.0	3248.5	1770.5	2.8	-5.6	7.4	206.5	100.7	24.2	0.257	60.8W
FEB 1	17 24 9.7	-19-36-54.9		405.6	3243.6	1767.8	1.4	-4.6	2.4	218.7	96.6	25.2	0.179	50.0W
FEB 2	18 14 21.3	-20-42-51.5		405.2	3247.2	1769.7	0.1	-3.5	357.2	230.8	91.9	26.2	0.113	39.2W
FEB 3	19 5 18.6	-20-53-41.8		403.8	3257.9	1775.6	-1.3	-2.2	352.1	243.0	86.7	27.2	0.060	28.3W
FEB 4	19 56 35.4	-20-7-23.1		401.8	3274.5	1784.6	-2.5	-0.8	347.3	255.2	80.8	28.2	0.023	17.3W
FEB 5	20 47 43.2	-18-24-43.2		399.2	3295.5	1796.0	-3.6	0.7	343.0	267.4	69.8	29.2	0.003	6.2W
FEB 6	21 38 18.8	-15-49-32.1		396.3	3319.7	1809.2	-4.5	2.1	339.6	279.6	268.5	0.5	0.002	5.4E
FEB 7	22 28 11.6	-12-28-25.6		393.2	3346.2	1823.7	-5.2	3.5	337.2	291.8	257.4	1.5	0.022	16.9E
FEB 8	23 17 26.2	-8-30-9.2		389.9	3374.4	1839.1	-5.6	4.7	335.8	304.0	253.6	2.5	0.061	28.6E
FEB 9	0 6 22.1	-4-5-1.2		386.5	3403.9	1855.1	-5.9	5.6	335.6	316.2	251.6	3.5	0.120	40.5E
FEB 10	0 55 31.1	0 35 31.5		383.1	3434.5	1871.8	-5.8	6.4	336.7	328.4	251.0	4.5	0.197	52.6E
FEB 11	1 45 33.6	5 18 58.0		379.6	3466.2	1889.1	-5.6	6.7	338.8	340.5	251.5	5.5	0.289	65.0E
FEB 12	2 37 13.6	9 51 31.6		376.1	3498.3	1906.6	-5.1	6.7	342.2	352.7	253.2	6.5	0.393	77.5E
FEB 13	3 31 11.8	13 57 53.6		372.7	3530.0	1923.8	-4.3	6.4	346.6	4.9	256.0	7.5	0.504	90.3E
FEB 14	4 27 55.4	17 21 20.1		369.6	3559.5	1939.9	-3.4	5.6	351.9	17.0	260.0	8.5	0.617	103.4E
FEB 15	5 27 24.9	19 44 47.6		367.0	3584.5	1953.6	-2.3	4.5	357.9	29.2	265.0	9.5	0.725	116.7E
FEB 16	6 29 3.1	20 53 25.8		365.2	3602.1	1963.2	-1.0	3.0	4.3	41.3	270.9	10.5	0.823	130.1E
FEB 17	7 31 36.0	20 38 17.4		364.5	3609.5	1967.1	0.4	1.4	10.4	53.5	277.4	11.5	0.904	143.7E
FEB 18	8 33 31.6	18 59 26.4		365.0	3604.3	1964.3	1.7	-0.3	15.8	65.6	284.8	12.5	0.962	157.3E
FEB 19	9 33 29.3	16 6 34.4		366.9	3585.8	1954.2	3.1	-2.0	20.1	77.8	298.0	13.5	0.993	170.7E
FEB 20	10 30 41.8	12 16 32.9		370.1	3554.7	1937.3	4.2	-3.6	22.9	89.9	78.5	14.5	0.998	175.0W
FEB 21	11 25 0.4	7 49 20.7		374.4	3513.8	1915.0	5.1	-4.9	24.2	102.0	101.4	15.5	0.977	162.4W
FEB 22	12 16 44.8	3 4 27.7		379.5	3466.6	1889.3	5.7	-5.8	24.2	114.2	105.7	16.5	0.932	149.7W
FEB 23	13 6 31.4	-1-41-12.1		385.0	3417.4	1862.5	5.9	-6.5	22.9	126.3	107.0	17.5	0.869	137.5W
FEB 24	13 55 2.0	-6-13-59.2		390.4	3370.1	1836.7	5.7	-6.8	20.6	138.5	106.8	18.5	0.792	125.6W
FEB 25	14 42 57.3	-10-23-9.4		395.3	3328.2	1813.9	5.2	-6.7	17.3	150.6	105.3	19.5	0.705	114.0W
FEB 26	15 30 53.0	-14 0-11.0		399.4	3294.2	1795.3	4.3	-6.3	13.4	162.8	102.9	20.5	0.612	102.8W
FEB 27	16 19 16.6	-16-58-2.1		402.4	3269.6	1782.0	3.2	-5.7	8.9	174.9	99.6	21.5	0.517	91.8W
FEB 28	17 8 24.9	-19-10-41.5		404.1	3255.4	1774.2	1.9	-4.8	4.0	187.1	95.7	22.5	0.422	80.9W
FEB 29	17 58 23.1	-20-33-0.9		404.6	3251.7	1772.2	0.6	-3.7	358.8	199.3	91.2	23.5	0.331	70.1W
MAR 1	18 49 3.9	-21 0-58.7		403.8	3257.9	1775.6	-0.8	-2.5	353.7	211.5	86.3	24.5	0.246	59.3W
MAR 2	19 40 10.6	-20-32-8.9		402.0	3273.0	1783.8	-2.1	-1.1	348.8	223.7	81.1	25.5	0.169	48.4W
MAR 3	20 31 21.4	-19-6-14.7		399.2	3295.7	1796.1	-3.3	0.3	344.3	235.9	75.6	26.5	0.103	37.3W
MAR 4	21 22 16.8	-16-45-33.9		395.8	3323.9	1811.5	-4.2	1.7	340.6	248.1	69.4	27.5	0.051	26.0W
MAR 5	22 12 44.8	-13-35-9.1		392.1	3355.7	1828.9	-4.8	3.1	337.8	260.3	60.1	28.5	0.016	14.7W
MAR 6	23 2 45.4	-9-42-41.5		388.2	3389.0	1847.0	-5.2	4.3	336.1	272.5	15.9	29.5	0.001	4.2W
MAR 7	23 52 31.5	-5-18-14.0		384.5	3421.7	1864.8	-5.3	5.4	335.6	284.7	269.9	0.8	0.008	10.3E
MAR 8	0 42 26.9	0-33-51.1		381.1	3452.2	1881.4	-5.1	6.1	336.3	296.9	258.5	1.8	0.038	22.3E
MAR 9	1 33 4.1	4 16 42.0		378.1	3479.5	1896.3	-4.6	6.6	338.2	309.1	255.8	2.8	0.089	34.7E
MAR 10	2 24 58.9	8 58 16.8		375.6	3503.0	1909.1	-4.0	6.6	341.3	321.3	255.9	3.8	0.162	47.4E
MAR 11	3 18 44.6	13 14 43.4		373.5	3522.6	1919.8	-3.2	6.3	345.5	333.5	257.8	4.8	0.252	60.2E
MAR 12	4 14 43.3	16 49 25.7		371.8	3538.3	1928.3	-2.4	5.6	350.6	345.7	261.1	5.8	0.356	73.1E
MAR 13	5 12 56.3	19 26 29.3		370.6	3550.0	1934.8	-1.5	4.6	356.5	357.9	265.6	6.8	0.468	86.2E
MAR 14	6 12 55.6	20 52 35.1		369.8	3557.6	1938.9	-0.5	3.2	2.6	10.0	270.9	7.8	0.582	99.3E
MAR 15	7 13 44.4	20 59 25.1		369.5	3560.3	1940.4	0.4	1.7	8.7	22.2	276.7	8.8	0.692	112.5E
MAR 16	8 14 10.8	19 45 47.5		369.9	3557.1	1938.6	1.4	0.1	14.2	34.4	282.6	9.8	0.792	125.6E
MAR 17	9 13 7.9	17 18 10.9		370.9	3547.0	1933.1	2.3	-1.6	18.7	46.5	288.6	10.8	0.876	138.7E
MAR 18	10 9 52.8	13 49 26.7		372.8	3529.4	1923.5	3.1	-3.1	22.0	58.7	295.0	11.8	0.941	151.7E</

Date	RA	[Mean]	Dec	Dist	H.P.	Diam	Libration			Sun	P.A.	Age	Phase	Solar	
(0 DT)	(h m s)	(d ' ")	(d ' ")	(1000*km)	(")	(")	l	b	c	Colng	Limb	(day)		Elong	
APR 1	21 54	43.6	-14-56	-4.4	393.4	3344.1	1822.6	-5.2	2.7	338.7	229.1	68.1	25.8	0.153	45.9W
APR 2	22 44	45.3	-11-15	-49.8	388.8	3384.1	1844.3	-5.7	4.0	336.6	241.3	63.3	26.8	0.087	34.3W
APR 3	23 34	43.1	-6-57	-58.5	384.0	3426.2	1867.3	-5.8	5.1	335.7	253.6	57.2	27.8	0.038	22.4W
APR 4	0 25	0.9	-2-13	-16.7	379.4	3467.5	1889.8	-5.5	5.9	336.0	265.8	41.8	28.8	0.009	10.7W
APR 5	1 16	9.9	2 44	50.5	375.4	3504.6	1910.0	-4.9	6.4	337.5	278.0	305.5	0.2	0.003	5.8E
APR 6	2 8	44.0	7 40	24.0	372.2	3534.9	1926.5	-4.0	6.5	340.3	290.2	267.1	1.2	0.022	16.9E
APR 7	3 3	13.9	12 15	21.5	369.9	3556.7	1938.4	-2.9	6.3	344.3	302.4	262.3	2.2	0.066	29.8E
APR 8	3 59	57.5	16 10	44.6	368.6	3569.1	1945.2	-1.8	5.6	349.3	314.7	263.1	3.2	0.134	42.9E
APR 9	4 58	50.1	19 8	31.8	368.3	3572.6	1947.1	-0.6	4.6	355.1	326.9	266.3	4.2	0.222	56.2E
APR 10	5 59	17.2	20 54	11.1	368.7	3568.4	1944.7	0.5	3.3	1.2	339.1	270.9	5.2	0.325	69.4E
APR 11	7 0	17.0	21 19	16.0	369.8	3557.8	1939.0	1.5	1.8	7.4	351.3	276.1	6.2	0.437	82.6E
APR 12	8 0	35.8	20 23	2.7	371.4	3542.5	1930.7	2.4	0.2	13.0	3.5	281.5	7.2	0.551	95.7E
APR 13	8 59	9.8	18 12	17.5	373.4	3523.6	1920.3	3.1	-1.4	17.8	15.7	286.6	8.2	0.661	108.6E
APR 14	9 55	21.6	14 59	20.6	375.7	3501.6	1908.4	3.7	-2.9	21.3	27.9	291.3	9.2	0.762	121.4E
APR 15	10 49	4.4	10 59	32.0	378.4	3477.1	1895.0	4.1	-4.2	23.5	40.0	295.4	10.2	0.848	134.1E
APR 16	11 40	35.2	6 29	2.2	381.3	3450.1	1880.3	4.5	-5.3	24.3	52.2	299.5	11.2	0.917	146.4E
APR 17	12 30	25.7	1 43	32.3	384.6	3421.1	1864.5	4.6	-6.0	23.9	64.4	305.1	12.2	0.966	158.5E
APR 18	13 19	12.9	-3 -2	-24.2	388.0	3390.6	1847.9	4.6	-6.5	22.3	76.5	321.0	13.2	0.992	169.9E
APR 19	14 7	33.4	-7-35	-35.5	391.6	3359.7	1831.0	4.4	-6.6	19.7	88.7	51.7	14.2	0.997	174.1W
APR 20	14 55	58.2	-11-44	-17.5	395.1	3329.7	1814.7	3.9	-6.3	16.2	100.9	89.1	15.2	0.982	164.5W
APR 21	15 44	50.2	-15-18	-18.3	398.4	3302.3	1799.7	3.2	-5.8	12.1	113.1	94.0	16.2	0.947	153.4W
APR 22	16 34	21.7	-18 -9	-5.8	401.2	3279.3	1787.2	2.2	-5.0	7.3	125.2	93.4	17.2	0.896	142.3W
APR 23	17 24	33.2	-20 -9	-58.3	403.3	3262.4	1778.0	1.1	-4.0	2.3	137.4	90.9	18.2	0.831	131.4W
APR 24	18 15	14.0	-21-16	-16.7	404.4	3253.3	1773.1	-0.2	-2.8	357.1	149.6	87.2	19.2	0.755	120.5W
APR 25	19 6	6.3	-21-25	-32.7	404.4	3253.2	1773.0	-1.6	-1.5	352.0	161.8	83.1	20.2	0.670	109.7W
APR 26	19 56	50.0	-20-37	-29.0	403.2	3262.9	1778.3	-3.0	-0.2	347.3	174.0	78.8	21.2	0.579	98.9W
APR 27	20 47	9.4	-18-53	-48.6	400.8	3282.7	1789.1	-4.3	1.2	343.1	186.2	74.6	22.2	0.483	87.9W
APR 28	21 36	57.8	-16-17	-58.9	397.2	3312.5	1805.3	-5.4	2.5	339.7	198.4	70.7	23.2	0.387	76.8W
APR 29	22 26	20.5	-12-55	-0.2	392.6	3351.2	1826.4	-6.2	3.8	337.3	210.6	67.2	24.2	0.293	65.4W
APR 30	23 15	34.9	-8-51	-27.5	387.3	3396.9	1851.3	-6.7	4.9	335.9	222.8	64.2	25.2	0.205	53.7W
MAY 1	0 5	9.4	-4-15	-51.1	381.7	3446.8	1878.5	-6.7	5.8	335.7	235.1	61.5	26.2	0.127	41.6W
MAY 2	0 55	40.4	0 40	47.9	376.2	3497.2	1906.0	-6.2	6.3	336.8	247.3	58.4	27.2	0.064	29.2W
MAY 3	1 47	48.6	5 44	18.3	371.3	3543.8	1931.4	-5.4	6.6	339.1	259.5	51.9	28.2	0.021	16.5W
MAY 4	2 42	12.4	10 36	60.0	367.3	3582.3	1952.3	-4.1	6.4	342.7	271.8	8.4	29.2	0.002	5.4W
MAY 5	3 39	18.3	14 58	17.0	364.5	3609.0	1966.9	-2.7	5.8	347.4	284.0	277.9	0.8	0.011	12.1E
MAY 6	4 39	7.3	18 26	34.5	363.3	3621.7	1973.8	-1.1	4.8	353.1	296.2	269.9	1.8	0.048	25.3E
MAY 7	5 41	3.5	20 42	47.3	363.4	3620.1	1972.9	0.5	3.5	359.4	308.5	271.4	2.8	0.111	38.9E
MAY 8	6 43	52.9	21 34	30.8	364.9	3605.6	1965.0	1.9	1.9	5.8	320.7	275.5	3.8	0.196	52.5E
MAY 9	7 46	1.9	20 59	0.5	367.4	3581.1	1951.7	3.1	0.3	11.7	332.9	280.3	4.8	0.297	66.0E
MAY 10	8 46	7.3	19 3	15.2	370.6	3549.8	1934.6	4.1	-1.3	16.8	345.2	285.1	5.8	0.407	79.2E
MAY 11	9 43	19.8	16 1	5.3	374.3	3514.8	1915.6	4.8	-2.9	20.6	357.4	289.3	6.8	0.520	92.1E
MAY 12	10 37	30.2	12 9	21.6	378.2	3478.7	1895.9	5.3	-4.2	23.1	9.6	292.7	7.8	0.629	104.8E
MAY 13	11 28	59.8	7 44	55.5	382.1	3443.3	1876.6	5.6	-5.3	24.2	21.8	295.4	8.8	0.730	117.2E
MAY 14	12 18	27.4	3 3	13.3	385.9	3409.4	1858.1	5.6	-6.0	24.1	34.0	297.3	9.8	0.818	129.4E
MAY 15	13 6	37.9	-1-42	-1.3	389.5	3377.8	1840.9	5.4	-6.5	22.8	46.2	298.7	10.8	0.891	141.3E
MAY 16	13 54	15.1	-6-18	-29.9	392.9	3348.4	1824.9	5.1	-6.6	20.5	58.3	300.5	11.8	0.945	152.9E
MAY 17	14 41	57.0	-10-34	-59.0	396.1	3321.7	1810.3	4.5	-6.4	17.3	70.5	305.3	12.8	0.981	164.2E
MAY 18	15 30	12.5	-14-21	-9.2	398.9	3297.8	1797.3	3.8	-5.9	13.3	82.7	335.5	13.8	0.997	174.3E
MAY 19	16 19	18.1	-17-27	-41.7	401.4	3277.3	1786.2	2.8	-5.1	8.8	94.9	73.0	14.8	0.994	171.4W
MAY 20	17 9	16.4	-19-46	-40.9	403.4	3261.1	1777.3	1.7	-4.1	3.8	107.1	85.9	15.8	0.973	161.0W
MAY 21	17 59	55.6	-21-12	-7.2	404.8	3250.0	1771.2	0.4	-3.0	358.6	119.3	86.1	16.8	0.934	150.2W
MAY 22	18 50	53.2	-21-40	-27.4	405.4	3245.2	1768.6	-0.9	-1.7	353.5	131.5	83.5	17.8	0.880	139.4W
MAY 23	19 41	42.0	-21-10	-50.1	405.1	3247.8	1770.1	-2.4	-0.3	348.6	143.7	80.0	18.8	0.813	128.6W
MAY 24	20 31	58.4	-19-44	-56.4	403.7	3258.9	1776.1	-3.7	1.1	344.3	155.9	76.3	19.8	0.734	117.7W
MAY 25	21 21	29.1	-17-26	-31.1	401.2	3279.3	1787.2	-5.0	2.4	340.7	168.1	72.7	20.8	0.645	106.8W
MAY 26	22 10	15.1	-14-20	-46.8	397.6	3309.1	1803.5	-6.1	3.7	338.0	180.3	69.6	21.8	0.550	95.6W
MAY 27	22 58	32.1	-10-33	-59.4	392.9	3348.2	1824.8	-7.0	4.8	336.3	192.5	67.0	22.8	0.451	84.2W
MAY 28	23 46	49.3	-6-13	-27.1	387.5	3395.5	1850.5	-7.4	5.7	335.7	204.7	65.1	23.8	0.351	72.5W
MAY 29	0 35	46.3	-1-27	-57.6	381.5	3448.8	1879.6	-7.4	6.3	336.2	217.0	64.0	24.8	0.254	60.4W
MAY 30	1 26	10.4	3 31	21.2	375.4	3504.8	1910.1	-7.0	6.7	338.0	229.2	63.5	25.8	0.165	47.9W
MAY 31	2 18	51.2	8 29	59.9	369.7	3559.1	1939.7	-6.1	6.6	341.0	241.4	63.5	26.8	0.090	34.9W
JUN 1	3 14	32.2	13 9	27.8	364.8	3606.5	1965.5	-4.7	6.1	345.3	253.7	62.7	27.8	0.035	21.5W
JUN 2	4 13	37.2	17 7	41.6	361.3	3641.8	1984.8	-3.0	5.2	350.6	265.9	50.7	28.8	0.005	8.2W
JUN 3	5 15	51.8	20 1	40.7	359.4	3661.0	1995.2	-1.2	3.9	356.8	278.2	289.1	0.5	0.004	7.5E
JUN 4	6 20	11.5	21 32	21.0	359.3	3662.1	1995.8	0.7	2.4	3.4	290.4	276.7	1.5	0.034	21.1E
JUN 5	7 24	49.0	21 30	9.5	36										

Date (0 DT)	RA [Mean]			Dec	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong		
	(h	m	s)					(d	'	")						l	b
JUL 1	5	51	25.2	21	3	12.0	358.2	3673.0	2001.8	-1.8	3.1	0.5	260.3	77.6	28.5	0.010	11.7W
JUL 2	6	56	49.8	21	44	28.3	357.4	3681.5	2006.4	0.2	1.4	7.1	272.6	296.4	0.2	0.001	3.0E
JUL 3	8	2	4.9	20	49	49.7	358.5	3670.2	2000.3	2.1	-0.4	13.2	284.8	280.5	1.2	0.022	17.0E
JUL 4	9	5	10.0	18	27	1.0	361.4	3640.7	1984.2	3.9	-2.2	18.2	297.1	283.9	2.2	0.072	31.0E
JUL 5	10	4	49.3	14	54	15.2	365.7	3597.3	1960.5	5.4	-3.8	21.7	309.3	287.5	3.2	0.146	44.8E
JUL 6	11	0	43.7	10	34	2.9	371.1	3545.1	1932.1	6.5	-5.1	23.7	321.6	290.2	4.2	0.237	58.1E
JUL 7	11	53	17.4	5	47	56.1	377.0	3489.6	1901.8	7.2	-6.0	24.2	333.8	291.9	5.2	0.339	71.0E
JUL 8	12	43	17.6	0	53	56.1	383.0	3435.4	1872.3	7.5	-6.6	23.5	346.1	292.5	6.2	0.444	83.5E
JUL 9	13	31	38.8	-3	-53	-43.2	388.6	3385.7	1845.2	7.4	-6.8	21.6	358.3	292.1	7.2	0.549	95.5E
JUL 10	14	19	13.2	-8	-23	-45.8	393.6	3342.6	1821.7	7.0	-6.7	18.8	10.5	290.8	8.2	0.649	107.2E
JUL 11	15	6	46.0	-12	-26	-49.5	397.8	3307.2	1802.4	6.2	-6.3	15.3	22.7	288.6	9.2	0.741	118.6E
JUL 12	15	54	51.2	-15	-54	-37.1	401.2	3279.6	1787.4	5.3	-5.6	11.0	34.9	285.6	10.2	0.821	129.9E
JUL 13	16	43	49.1	-18	-39	-34.8	403.6	3259.7	1776.5	4.1	-4.6	6.3	47.1	281.9	11.2	0.889	140.9E
JUL 14	17	33	44.1	-20	-35	-0.7	405.2	3246.7	1769.4	2.8	-3.5	1.3	59.3	277.7	12.2	0.941	151.9E
JUL 15	18	24	23.5	-21	-35	-40.2	406.1	3240.1	1765.8	1.4	-2.2	356.1	71.5	273.1	13.2	0.978	162.8E
JUL 16	19	15	21.5	-21	-38	-31.1	406.2	3239.2	1765.4	0.0	-0.9	351.1	83.7	268.6	14.2	0.997	173.7E
JUL 17	20	6	6.2	-20	-43	-20.9	405.6	3243.8	1767.9	-1.4	0.6	346.4	95.9	83.4	15.2	0.998	175.4W
JUL 18	20	56	8.6	-18	-52	-53.8	404.4	3253.5	1773.2	-2.7	1.9	342.4	108.1	79.4	16.2	0.982	164.5W
JUL 19	21	45	11.1	-16	-12	-27.1	402.5	3268.6	1781.4	-4.0	3.3	339.3	120.3	75.7	17.2	0.947	153.4W
JUL 20	22	33	11.9	-12	-49	-6.3	400.0	3289.3	1792.6	-5.1	4.4	337.1	132.5	72.7	18.2	0.896	142.3W
JUL 21	23	20	25.3	-8	-51	-0.9	396.8	3315.9	1807.1	-6.0	5.4	335.9	144.7	70.5	19.2	0.829	131.0W
JUL 22	0	7	20.2	-4	-26	-58.5	392.9	3348.7	1825.1	-6.7	6.2	335.8	156.9	69.2	20.2	0.747	119.5W
JUL 23	0	54	36.8	0	13	35.8	388.3	3387.8	1846.4	-7.1	6.7	336.8	169.1	68.8	21.2	0.653	107.7W
JUL 24	1	43	3.6	5	0	12.7	383.3	3432.6	1870.7	-7.2	6.8	338.9	181.3	69.4	22.2	0.551	95.7W
JUL 25	2	33	33.8	9	40	31.1	377.9	3481.6	1897.5	-6.9	6.6	342.1	193.6	71.2	23.2	0.443	83.3W
JUL 26	3	26	58.2	13	59	25.6	372.4	3532.4	1925.2	-6.2	6.0	346.4	205.8	74.0	24.2	0.334	70.5W
JUL 27	4	23	54.7	17	38	42.5	367.4	3581.4	1951.9	-5.2	5.0	351.7	218.0	78.1	25.2	0.230	57.2W
JUL 28	5	24	30.1	20	17	57.8	363.0	3624.0	1975.1	-3.8	3.7	357.8	230.3	83.4	26.2	0.139	43.6W
JUL 29	6	28	3.0	21	37	55.3	360.0	3655.0	1992.0	-2.2	2.1	4.2	242.5	89.9	27.2	0.066	29.7W
JUL 30	7	33	0.6	21	25	50.1	358.5	3670.2	2000.2	-0.4	0.3	10.6	254.8	98.0	28.2	0.018	15.6W
JUL 31	8	37	22.8	19	40	30.5	358.8	3666.8	1998.4	1.5	-1.5	16.1	267.0	142.2	29.2	0.000	1.8W
AUG 1	9	39	24.6	16	33	25.9	361.0	3644.8	1986.4	3.3	-3.1	20.3	279.3	278.4	0.9	0.013	12.8E
AUG 2	10	38	8.2	12	25	3.4	364.8	3606.7	1965.6	4.9	-4.6	23.0	291.5	284.9	1.9	0.053	26.7E
AUG 3	11	33	26.8	7	38	54.7	369.9	3557.2	1938.7	6.2	-5.7	24.2	303.8	288.1	2.9	0.118	40.1E
AUG 4	12	25	49.3	2	36	53.6	375.7	3501.6	1908.3	7.0	-6.4	23.9	316.0	289.6	3.9	0.201	53.1E
AUG 5	13	16	2.4	-2	-22	-57.0	381.9	3445.1	1877.6	7.4	-6.8	22.3	328.2	289.8	4.9	0.295	65.7E
AUG 6	14	4	56.8	-7	-6	-36.1	387.9	3392.0	1848.6	7.4	-6.8	19.7	340.5	288.8	5.9	0.395	77.8E
AUG 7	14	53	19.2	-11	-23	-15.3	393.3	3345.3	1823.2	7.0	-6.4	16.3	352.7	286.8	6.9	0.497	89.5E
AUG 8	15	41	48.0	-15	-4	-16.7	397.8	3306.9	1802.3	6.2	-5.8	12.2	4.9	283.9	7.9	0.596	100.9E
AUG 9	16	30	49.8	-18	-2	-25.7	401.4	3277.7	1786.3	5.2	-4.9	7.6	17.1	280.2	8.9	0.689	112.0E
AUG 10	17	20	36.9	-20	-11	-31.0	403.9	3257.7	1775.4	4.0	-3.8	2.6	29.3	275.8	9.9	0.773	123.0E
AUG 11	18	11	6.0	-21	-26	-32.7	405.2	3246.5	1769.3	2.6	-2.5	357.4	41.5	270.8	10.9	0.848	133.9E
AUG 12	19	1	59.9	-21	-44	-12.7	405.7	3243.3	1767.6	1.2	-1.2	352.4	53.7	265.2	11.9	0.909	144.8E
AUG 13	19	52	52.3	-21	-3	-30.3	405.2	3247.1	1769.7	-0.2	0.2	347.6	65.9	258.8	12.9	0.956	155.6E
AUG 14	20	43	15.5	-19	-26	-5.9	404.0	3256.9	1775.0	-1.6	1.6	343.4	78.1	249.8	13.9	0.986	166.5E
AUG 15	21	32	48.7	-16	-56	-20.2	402.1	3271.7	1783.1	-2.8	3.0	340.0	90.3	208.4	14.9	0.999	176.7E
AUG 16	22	21	23.4	-13	-40	-49.7	399.8	3290.8	1793.5	-3.8	4.2	337.6	102.5	88.7	15.9	0.993	170.7W
AUG 17	23	9	6.2	-9	-47	-51.2	397.0	3313.6	1805.9	-4.7	5.2	336.1	114.7	77.9	16.9	0.969	159.5W
AUG 18	23	56	17.4	-5	-26	-48.9	393.9	3340.0	1820.3	-5.4	6.0	335.8	126.9	73.9	17.9	0.925	148.1W
AUG 19	0	43	29.0	0	-47	-55.7	390.4	3369.7	1836.5	-5.8	6.5	336.5	139.1	72.2	18.9	0.863	136.4W
AUG 20	1	31	22.1	3	57	46.2	386.6	3402.8	1854.5	-6.0	6.7	338.4	151.3	72.0	19.9	0.784	124.5W
AUG 21	2	20	42.7	8	38	6.6	382.6	3438.9	1874.2	-6.0	6.6	341.3	163.5	73.1	20.9	0.691	112.4W
AUG 22	3	12	17.4	12	59	19.4	378.3	3477.5	1895.2	-5.7	6.1	345.2	175.7	75.4	21.9	0.588	100.0W
AUG 23	4	6	45.7	16	45	40.6	374.1	3517.2	1916.9	-5.2	5.2	350.1	187.9	78.9	22.9	0.477	87.3W
AUG 24	5	4	27.2	19	39	48.4	370.0	3555.8	1937.9	-4.3	4.0	355.7	200.1	83.6	23.9	0.365	74.2W
AUG 25	6	5	7.5	21	24	23.2	366.4	3590.4	1956.8	-3.3	2.6	1.9	212.3	89.4	24.9	0.258	60.9W
AUG 26	7	7	49.9	21	45	32.1	363.7	3617.3	1971.4	-2.0	0.9	8.2	224.5	96.0	25.9	0.162	47.3W
AUG 27	8	11	2.9	20	37	2.1	362.2	3632.8	1979.9	-0.5	-0.8	13.9	236.8	103.3	26.9	0.084	33.6W
AUG 28	9	13	8.9	18	3	10.9	362.0	3634.0	1980.5	1.1	-2.5	18.7	249.0	112.5	27.9	0.030	19.8W
AUG 29	10	12	55.4	14	18	14.7	363.5	3619.6	1972.7	2.7	-4.0	22.0	261.3	137.9	28.9	0.003	6.7W
AUG 30	11	9	51.3	9	42	53.6	366.4	3590.3	1956.7	4.2	-5.2	23.8	273.5	265.8	0.6	0.006	8.7E
AUG 31	12	4	3.7	4	39	40.2	370.7	3549.0	1934.2	5.4	-6.1	24.1	285.7	281.6	1.		

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(° ' ")	(° ' ")					l	b	c					
OCT 1	15	6	43.4	-12-49-42.7	388.3	3388.1	1846.5	5.9	-5.9	15.2	304.0	280.5	3.2	0.117	40.0E
OCT 2	15	57	10.0	-16-28-10.8	393.2	3346.4	1823.8	5.5	-5.1	10.7	316.2	278.7	4.2	0.190	51.6E
OCT 3	16	47	59.8	-19-16-28.0	397.4	3310.4	1804.2	4.7	-4.0	5.8	328.4	275.5	5.2	0.274	63.0E
OCT 4	17	39	11.6	-21-8-57.9	400.8	3282.4	1788.9	3.6	-2.9	0.7	340.6	271.4	6.2	0.364	74.1E
OCT 5	18	30	33.2	-22-2-25.7	403.1	3263.9	1778.8	2.4	-1.6	355.5	352.8	266.9	7.2	0.458	85.0E
OCT 6	19	21	45.0	-21-55-53.6	404.1	3255.6	1774.3	1.0	-0.2	350.5	5.0	262.0	8.2	0.552	95.9E
OCT 7	20	12	26.9	-20-50-33.9	403.9	3257.7	1775.5	-0.4	1.1	345.9	17.2	257.2	9.2	0.645	106.7E
OCT 8	21	2	23.8	-18-49-35.7	402.4	3269.7	1782.0	-1.8	2.5	342.0	29.4	252.5	10.2	0.732	117.5E
OCT 9	21	51	30.1	-15-57-50.3	399.8	3290.6	1793.4	-2.9	3.7	339.0	41.6	248.0	11.2	0.812	128.6E
OCT 10	22	39	52.4	-12-21-38.6	396.4	3318.8	1808.8	-3.8	4.8	336.9	53.7	243.7	12.2	0.882	139.7E
OCT 11	23	27	48.4	-8-8-50.2	392.5	3352.2	1827.0	-4.5	5.6	335.9	65.9	238.9	13.2	0.938	151.1E
OCT 12	0	15	45.8	-3-28-51.1	388.3	3388.5	1846.7	-4.8	6.2	336.0	78.1	231.1	14.2	0.977	162.6E
OCT 13	1	4	19.4	1 27 0.1	384.1	3425.0	1866.6	-4.8	6.5	337.3	90.2	200.1	15.2	0.997	173.2E
OCT 14	1	54	8.1	6 25 17.3	380.3	3459.4	1885.4	-4.5	6.5	339.7	102.4	101.5	16.2	0.993	170.7W
OCT 15	2	45	50.2	11 10 24.3	377.0	3489.7	1901.9	-4.0	6.0	343.2	114.5	84.7	17.2	0.967	159.0W
OCT 16	3	39	56.4	15 24 57.0	374.4	3514.5	1915.4	-3.3	5.3	347.7	126.7	82.8	18.2	0.917	146.4W
OCT 17	4	36	40.0	18 50 48.2	372.4	3533.1	1925.6	-2.5	4.2	353.0	138.8	84.9	19.2	0.845	133.5W
OCT 18	5	35	46.2	21 11 4.9	371.1	3545.7	1932.4	-1.6	2.8	359.0	151.0	88.9	20.2	0.755	120.5W
OCT 19	6	36	27.6	22 12 52.9	370.3	3552.7	1936.2	-0.8	1.3	5.1	163.2	93.9	21.2	0.651	107.5W
OCT 20	7	37	31.0	21 49 58.9	370.1	3554.7	1937.3	0.1	-0.4	11.0	175.3	99.4	22.2	0.539	94.4W
OCT 21	8	37	38.8	20 4 15.9	370.4	3552.0	1935.9	1.0	-2.0	16.1	187.5	104.9	23.2	0.425	81.3W
OCT 22	9	35	52.3	17 5 4.9	371.1	3544.9	1931.9	1.9	-3.4	20.1	199.7	109.8	24.2	0.316	68.2W
OCT 23	10	31	44.8	13 7 0.5	372.4	3532.9	1925.4	2.7	-4.7	22.7	211.9	114.2	25.2	0.216	55.2W
OCT 24	11	25	21.3	8 27 15.3	374.2	3515.8	1916.1	3.6	-5.7	24.0	224.1	118.0	26.2	0.131	42.3W
OCT 25	12	17	8.4	3 23 41.7	376.6	3493.4	1903.9	4.3	-6.3	23.9	236.3	122.0	27.2	0.066	29.7W
OCT 26	13	7	43.4	-1-46-19.5	379.6	3465.9	1888.9	4.8	-6.6	22.5	248.5	128.8	28.2	0.023	17.3W
OCT 27	13	57	45.5	-6-46-37.5	383.1	3434.0	1871.6	5.2	-6.4	20.0	260.7	160.5	29.2	0.003	6.4W
OCT 28	14	47	48.9	-11-22-35.3	387.0	3399.4	1852.7	5.3	-6.0	16.6	272.9	258.1	0.7	0.007	9.3E
OCT 29	15	38	17.7	-15-21-31.0	391.1	3363.9	1833.3	5.0	-5.2	12.4	285.2	272.6	1.7	0.032	20.4E
OCT 30	16	29	22.9	-18-33-0.2	395.1	3329.9	1814.8	4.5	-4.2	7.6	297.4	273.6	2.7	0.076	31.8E
OCT 31	17	21	0.4	-20-49-19.1	398.7	3299.9	1798.5	3.6	-3.0	2.5	309.6	271.4	3.7	0.135	43.1E
NOV 1	18	12	52.6	-22-5-42.8	401.6	3276.0	1785.4	2.5	-1.7	357.2	321.8	267.8	4.7	0.208	54.1E
NOV 2	19	4	33.6	-22-20-30.6	403.6	3260.1	1776.8	1.2	-0.4	352.1	334.0	263.5	5.7	0.290	65.0E
NOV 3	19	55	36.8	-21-34-51.7	404.4	3253.6	1773.2	-0.2	1.0	347.4	346.1	259.1	6.7	0.379	75.8E
NOV 4	20	45	42.8	-19-52-12.1	403.9	3257.3	1775.2	-1.6	2.3	343.3	358.3	254.8	7.7	0.472	86.6E
NOV 5	21	34	44.6	-17-17-33.8	402.2	3271.5	1783.0	-2.9	3.6	340.0	10.5	250.9	8.7	0.567	97.5E
NOV 6	22	22	49.4	-13-57-0.9	399.2	3295.8	1796.2	-4.1	4.6	337.6	22.7	247.5	9.7	0.660	108.5E
NOV 7	23	10	17.8	-9-57-25.5	395.2	3329.3	1814.4	-5.0	5.6	336.2	34.8	244.6	10.7	0.749	119.7E
NOV 8	23	57	41.2	-5-26-38.8	390.4	3369.9	1836.6	-5.5	6.2	335.9	47.0	242.3	11.7	0.830	131.2E
NOV 9	0	45	39.3	0-34-2.7	385.2	3415.2	1861.3	-5.7	6.6	336.7	59.1	240.2	12.7	0.900	143.1E
NOV 10	1	34	56.9	4 28 44.4	380.1	3461.7	1886.6	-5.5	6.6	338.7	71.3	237.5	13.7	0.954	155.2E
NOV 11	2	26	19.7	9 27 4.8	375.3	3505.7	1910.6	-4.9	6.2	341.8	83.4	229.1	14.7	0.988	167.5E
NOV 12	3	20	26.7	14 3 6.5	371.3	3543.5	1931.2	-4.0	5.5	346.0	95.5	145.5	15.7	0.998	175.5W
NOV 13	4	17	39.1	17 56 27.8	368.3	3571.9	1946.7	-2.9	4.4	351.2	107.7	92.6	16.7	0.983	164.8W
NOV 14	5	17	45.8	20 46 35.3	366.6	3589.0	1956.0	-1.6	3.0	357.2	119.8	90.1	17.7	0.941	151.7W
NOV 15	6	19	54.0	22 16 33.5	366.0	3594.2	1958.8	-0.3	1.5	3.5	132.0	93.2	18.7	0.874	138.3W
NOV 16	7	22	34.9	22 17 16.6	366.6	3588.6	1955.8	0.9	-0.2	9.6	144.1	97.9	19.7	0.787	124.9W
NOV 17	8	24	10.2	20 49 50.9	368.1	3574.2	1947.9	2.0	-1.9	15.0	156.3	103.0	20.7	0.685	111.6W
NOV 18	9	23	24.6	18 4 38.2	370.3	3553.4	1936.6	3.0	-3.4	19.3	168.4	107.6	21.7	0.574	98.4W
NOV 19	10	19	44.1	14 17 46.8	372.9	3528.4	1923.0	3.8	-4.7	22.3	180.6	111.5	22.7	0.461	85.4W
NOV 20	11	13	14.8	9 47 24.3	375.8	3501.2	1908.1	4.5	-5.7	23.8	192.7	114.4	23.7	0.352	72.6W
NOV 21	12	4	29.7	4 51 8.5	378.8	3472.8	1892.6	5.0	-6.4	24.0	204.9	116.4	24.7	0.251	60.0W
NOV 22	12	54	14.4	0-14-49.5	382.0	3443.9	1876.9	5.3	-6.7	23.0	217.1	117.5	25.7	0.164	47.6W
NOV 23	13	43	16.7	-5-15-46.8	385.3	3414.7	1861.0	5.5	-6.6	20.8	229.3	118.2	26.7	0.093	35.5W
NOV 24	14	32	19.6	-9-58-11.7	388.6	3385.6	1845.2	5.4	-6.2	17.7	241.5	119.3	27.7	0.042	23.5W
NOV 25	15	21	56.0	-14-9-35.9	391.9	3356.8	1829.5	5.1	-5.5	13.8	253.7	124.9	28.7	0.011	12.0W
NOV 26	16	12	24.5	-17-38-45.3	395.2	3329.0	1814.3	4.6	-4.5	9.2	265.9	196.7	0.0	0.001	3.5E
NOV 27	17	3	45.9	-20-16-15.1	398.3	3303.1	1800.2	3.8	-3.3	4.2	278.1	263.6	1.0	0.011	12.0E
NOV 28	17	55	43.4	-21-55-15.8	401.1	3280.4	1787.8	2.8	-2.0	358.9	290.3	266.9	2.0	0.040	23.0E
NOV 29	18	47	46.1	-22-32-15.1	403.3	3262.3	1778.0	1.6	-0.6	353.7	302.5	264.6	3.0	0.086	34.0E
NOV 30	19	39	18.1	-22-7-12.8	404.8	3250.5	1771.5	0.2	0.8	348.8	314.6	261.0	4.0	0.146	44.8E
DEC 1	20	29	49.0	-20-43-17.4	405.3	3246.3	1769.2	-1.2	2.1	344.5	326.8	257.1	5.0	0.218	55.6E
DEC 2	21	19	1.8	-18-25-52.9	404.7	3251.1	1771.8	-2.6	3.4	340.9	339.0	253.5	6.0	0.301	66.4E
DEC 3	22	6	57.0	-15-21-37.8	402.9	3265.7	1779.8	-3.9	4.5	338.3	351.2	250.3	7.0	0.391	77.2E
DEC 4	22	53	51.8	-11-37-40.1	399.8	3290.5	1793.3	-5.1	5.5	336.6	3.3	247.7	8.0.		

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
		(h m s)							l	b	c					
JAN 1	1	23 25	55.4		-8-49-30.4	400.7	3283.2	1789.3	-5.7	6.1	336.0	343.8	248.7	6.3	0.315	68.1E
JAN 2	2	0 11	28.2		-4-21-0.5	396.8	3315.8	1807.1	-6.6	6.6	336.1	356.0	247.5	7.3	0.408	79.3E
JAN 3	3	0 57	27.4		0 23 44.1	391.8	3357.6	1829.9	-7.3	6.9	337.2	8.1	247.2	8.3	0.507	90.7E
JAN 4	4	1 44	47.0		5 15 18.5	386.1	3407.6	1857.2	-7.6	6.7	339.3	20.3	247.8	9.3	0.609	102.5E
JAN 5	5	2 34	25.5		10 2 4.2	379.8	3463.8	1887.8	-7.5	6.3	342.4	32.4	249.6	10.3	0.710	114.6E
JAN 6	6	3 27	19.0		14 28 57.6	373.5	3522.8	1919.9	-7.0	5.4	346.7	44.6	252.5	11.3	0.804	127.3E
JAN 7	7	4 24	9.5		18 16 50.2	367.5	3579.7	1950.9	-6.0	4.3	351.9	56.7	256.7	12.3	0.886	140.4E
JAN 8	8	5 25	5.1		21 3 29.1	362.5	3629.0	1977.8	-4.6	2.8	357.9	68.8	262.2	13.3	0.950	154.0E
JAN 9	9	6 29	19.5		22 27 25.4	359.0	3664.8	1997.3	-2.9	1.0	4.4	80.9	269.1	14.3	0.989	168.0E
JAN 10	10	7 35	7.3		22 14 18.8	357.3	3682.5	2007.0	-1.0	-0.8	10.7	93.1	83.6	15.3	1.000	177.8W
JAN 11	11	8 40	13.6		20 22 49.4	357.5	3680.0	2005.6	1.0	-2.5	16.3	105.2	98.2	16.3	0.980	163.6W
JAN 12	12	9 42	44.2		17 5 40.3	359.7	3658.0	1993.6	2.9	-4.1	20.4	117.3	103.8	17.3	0.931	149.4W
JAN 13	13	10 41	40.7		12 44 59.0	363.4	3620.1	1973.0	4.6	-5.4	23.0	129.4	107.8	18.3	0.858	135.6W
JAN 14	14	11 37	2.5		7 45 35.3	368.4	3571.5	1946.5	6.0	-6.2	24.0	141.6	110.4	19.3	0.767	122.1W
JAN 15	15	12 29	26.4		2 30 6.5	374.0	3517.7	1917.1	7.0	-6.7	23.6	153.7	111.5	20.3	0.664	109.0W
JAN 16	16	13 19	46.5		-2-42-58.3	379.9	3463.5	1887.6	7.5	-6.8	21.9	165.9	111.5	21.3	0.557	96.4W
JAN 17	17	14 8	58.7		-7-39-8.8	385.5	3412.6	1859.9	7.6	-6.5	19.2	178.0	110.2	22.3	0.451	84.3W
JAN 18	18	14 57	53.2		-12-6-52.5	390.7	3367.4	1835.3	7.4	-5.9	15.7	190.2	108.0	23.3	0.350	72.4W
JAN 19	19	15 47	8.7		-15-56-31.8	395.2	3329.1	1814.4	6.8	-5.0	11.5	202.4	104.8	24.3	0.258	60.9W
JAN 20	20	16 37	8.8		-18-59-47.5	398.9	3298.0	1797.4	5.9	-3.9	6.8	214.5	100.7	25.3	0.177	49.6W
JAN 21	21	17 27	58.8		-21-9-37.8	401.9	3273.8	1784.2	4.8	-2.6	1.7	226.7	95.8	26.3	0.109	38.5W
JAN 22	22	18 19	25.0		-22-20-47.9	404.1	3256.1	1774.6	3.5	-1.3	356.5	238.9	90.0	27.3	0.057	27.6W
JAN 23	23	19 10	58.4		-22-30-36.2	405.5	3244.2	1768.1	2.2	0.1	351.5	251.1	82.8	28.3	0.021	16.7W
JAN 24	24	20 2	2.8		-21-39-29.7	406.4	3237.6	1764.5	0.8	1.5	346.8	263.3	67.3	29.3	0.003	6.0W
JAN 25	25	20 52	5.6		-19-51-6.8	406.5	3236.1	1763.7	-0.6	2.9	342.8	275.5	278.3	0.5	0.002	5.3E
JAN 26	26	21 40	46.4		-17-11-44.0	406.1	3239.7	1765.7	-2.0	4.1	339.7	287.7	261.9	1.5	0.019	16.0E
JAN 27	27	22 28	1.7		-13-49-19.6	405.0	3248.8	1770.6	-3.3	5.1	337.4	299.9	256.3	2.5	0.054	26.8E
JAN 28	28	23 14	5.2		-9-52-38.6	403.1	3263.8	1778.8	-4.5	5.9	336.2	312.0	252.9	3.5	0.105	37.7E
JAN 29	29	23 59	24.6		-5-30-36.9	400.4	3285.5	1790.6	-5.6	6.5	336.0	324.2	250.9	4.5	0.171	48.7E
JAN 30	0	44 38.9			0-52-12.1	396.9	3314.4	1806.4	-6.5	6.8	336.8	336.4	250.0	5.5	0.250	59.9E
JAN 31	1	30 35.6			3 53 18.2	392.6	3350.9	1826.3	-7.2	6.7	338.6	348.6	250.1	6.5	0.341	71.3E
FEB 1	2	1 18	7.6		8 35 35.0	387.5	3394.9	1850.2	-7.6	6.4	341.3	0.7	251.4	7.5	0.440	83.0E
FEB 2	3	8 10.4			13 2 21.3	381.9	3445.3	1877.7	-7.6	5.7	345.1	12.9	253.8	8.5	0.545	95.0E
FEB 3	4	1 34.2			16 58 27.0	375.9	3500.1	1907.5	-7.3	4.7	349.8	25.1	257.5	9.5	0.651	107.5E
FEB 4	4	58 51.2			20 5 33.6	370.0	3555.7	1937.9	-6.6	3.3	355.3	37.2	262.5	10.5	0.754	120.4E
FEB 5	5	59 56.9			22 3 37.4	364.7	3607.7	1966.2	-5.4	1.8	1.5	49.3	268.7	11.5	0.846	133.7E
FEB 6	6	7 3 54.0			22 34 43.3	360.4	3650.2	1989.4	-3.9	0.0	7.8	61.5	276.2	12.5	0.922	147.5E
FEB 7	7	8 8 57.0			21 28 53.5	357.7	3678.0	2004.5	-2.1	-1.7	13.7	73.6	286.2	13.5	0.974	161.5E
FEB 8	8	9 13 4.1			18 48 47.7	356.9	3686.8	2009.3	-0.1	-3.4	18.6	85.7	318.4	14.5	0.998	175.0E
FEB 9	9	10 14 41.4			14 49 54.5	358.0	3675.0	2002.9	2.0	-4.8	22.0	97.9	90.8	15.5	0.991	169.4W
FEB 10	10	11 13 7.4			9 55 58.1	361.0	3644.1	1986.0	3.9	-5.9	23.7	110.0	103.0	16.5	0.955	155.6W
FEB 11	11	12 8 29.1			4 32 53.5	365.6	3598.2	1961.0	5.6	-6.5	23.9	122.1	107.1	17.5	0.894	141.9W
FEB 12	12	13 1 23.7			0-55-46.5	371.3	3543.0	1931.0	6.8	-6.7	22.6	134.3	108.5	18.5	0.813	128.6W
FEB 13	13	52 39.9			-6-10-51.3	377.6	3484.3	1898.9	7.5	-6.5	20.2	146.4	108.2	19.5	0.719	115.9W
FEB 14	14	14 43 6.2			-10-57-35.9	383.9	3427.0	1867.7	7.8	-6.0	16.8	158.6	106.5	20.5	0.618	103.5W
FEB 15	15	15 33 22.7			-15-4-50.4	389.8	3374.9	1839.3	7.6	-5.1	12.7	170.7	103.7	21.5	0.516	91.7W
FEB 16	16	16 23 56.8			-18-24-3.0	395.0	3330.4	1815.1	6.9	-4.0	8.1	182.9	99.9	22.5	0.416	80.1W
FEB 17	17	17 15 0.1			-20-48-44.2	399.3	3294.7	1795.6	6.0	-2.8	3.0	195.1	95.3	23.5	0.321	68.9W
FEB 18	18	6 27.2			-22-14-19.8	402.6	3268.1	1781.1	4.8	-1.5	357.8	207.3	90.1	24.5	0.235	57.9W
FEB 19	18	57 58.3			-22-38-27.1	404.8	3250.3	1771.4	3.4	-0.1	352.7	219.4	84.4	25.5	0.160	47.0W
FEB 20	20	19 49 5.3			-22-1-16.0	406.0	3240.5	1766.1	2.0	1.3	348.0	231.6	78.2	26.5	0.097	36.3W
FEB 21	20	39 20.0			-20-25-38.3	406.3	3237.9	1764.7	0.6	2.6	343.8	243.8	71.2	27.5	0.049	25.6W
FEB 22	21	28 22.3			-17-56-53.4	405.9	3241.4	1766.6	-0.8	3.8	340.4	256.0	60.8	28.5	0.017	15.0W
FEB 23	22	16 5.5			-14-42-16.9	404.8	3250.3	1771.4	-2.1	4.9	337.9	268.2	25.0	29.5	0.002	5.3W
FEB 24	23	2 37.3			-10-50-20.5	403.1	3264.0	1778.9	-3.3	5.7	336.5	280.4	278.3	0.7	0.005	8.4E
FEB 25	23	48 18.9			-6-30-20.6	400.9	3282.0	1788.7	-4.3	6.3	336.0	292.6	260.7	1.7	0.027	18.9E
FEB 26	0	33 41.8			-1-51-59.6	398.2	3304.3	1800.9	-5.2	6.6	336.6	304.8	255.6	2.7	0.067	29.9E
FEB 27	1	19 25.7			2 54 34.9	395.0	3331.1	1815.5	-5.9	6.6	338.1	317.0	253.7	3.7	0.125	41.2E
FEB 28	2	6 15.7			7 38 34.5	391.3	3362.6	1832.6	-6.4	6.3	340.6	329.2	253.8	4.7	0.198	52.8E
MAR 1	1	2 54 59.5			12 8 1.8	387.1	3398.8	1852.4	-6.7	5.7	344.1	341.4	255.3	5.7	0.286	64.5E
MAR 2	2	3 46 22.2			16 9 18.8	382.5	3439.5	1874.5	-6.8	4.7	348.4	353.6	258.2	6.7	0.385	76.6E
MAR 3	3	4 40 57.5			19 26 51.1	377.7	3483.6	1898.6	-6.6	3.5	353.6	5.8	262.3	7.7	0.492	88.9E
MAR 4	4	5 38 55.2			21 43 43.7	372.8	3529.2	1923.4	-6.1	2.1	359.4	17.9	267.6	8.7	0.602	101.6E
MAR 5	5><															

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")					l	b	c					
APR 1	6 23 55.1	22 51 52.4		373.7	3520.3	1918.6	-4.7	0.6	3.9	359.0	272.4	6.9	0.451	84.2E
APR 2	7 24 39.3	22 47 12.8		370.6	3549.8	1934.6	-3.9	-1.0	9.8	11.2	278.4	7.9	0.563	97.1E
APR 3	8 25 40.0	21 15 12.7		368.0	3575.5	1948.7	-3.0	-2.5	15.1	23.4	284.4	8.9	0.675	110.3E
APR 4	9 25 42.8	18 20 23.9		366.0	3595.0	1959.2	-1.8	-4.0	19.4	35.5	290.2	9.9	0.778	123.7E
APR 5	10 23 58.9	14 15 8.8		364.9	3605.3	1964.9	-0.4	-5.2	22.3	47.7	295.6	10.9	0.867	137.1E
APR 6	11 20 13.1	9 17 32.7		365.0	3604.3	1964.3	1.1	-6.0	23.7	59.9	301.4	11.9	0.936	150.6E
APR 7	12 14 39.8	3 48 44.6		366.4	3590.5	1956.8	2.6	-6.5	23.7	72.0	310.9	12.9	0.980	163.8E
APR 8	13 7 51.0	-1 49 25.0		369.1	3564.2	1942.5	3.9	-6.5	22.3	84.2	1.7	13.9	0.998	174.7W
APR 9	14 0 24.5	-7 16 13.1		373.0	3527.2	1922.3	5.0	-6.1	19.6	96.4	88.1	14.9	0.989	167.7W
APR 10	14 52 54.2	-12 13 20.0		377.8	3482.7	1898.1	5.7	-5.4	16.0	108.5	97.8	15.9	0.955	155.4W
APR 11	15 45 43.0	-16 25 39.5		383.0	3434.7	1871.9	6.0	-4.4	11.6	120.7	98.3	16.9	0.900	143.1W
APR 12	16 38 57.8	-19 41 47.8		388.4	3387.1	1846.0	5.9	-3.1	6.6	132.9	95.8	17.9	0.830	131.1W
APR 13	17 32 28.0	-21 54 20.3		393.5	3343.5	1822.2	5.4	-1.8	1.2	145.0	92.0	18.9	0.747	119.5W
APR 14	18 25 48.6	-22 59 52.7		397.9	3306.7	1802.1	4.5	-0.4	355.9	157.2	87.3	19.9	0.657	108.2W
APR 15	19 18 27.6	-22 58 45.3		401.3	3278.6	1786.9	3.3	1.0	350.8	169.4	82.4	20.9	0.563	97.1W
APR 16	20 9 55.9	-21 54 24.7		403.5	3260.5	1777.0	2.0	2.3	346.2	181.6	77.5	21.9	0.468	86.2W
APR 17	20 59 55.0	-19 52 30.4		404.5	3252.8	1772.8	0.6	3.5	342.3	193.8	72.9	22.9	0.375	75.3W
APR 18	21 48 21.5	-17 0 -0.9		404.2	3255.2	1774.1	-0.7	4.6	339.3	206.0	68.8	23.9	0.286	64.5W
APR 19	22 35 27.0	-13 24 35.6		402.7	3267.0	1780.5	-2.0	5.5	337.3	218.2	65.1	24.9	0.204	53.6W
APR 20	23 21 35.5	-9 14 19.2		400.3	3287.0	1791.4	-3.0	6.1	336.2	230.5	61.7	25.9	0.133	42.6W
APR 21	0 7 20.3	-4 37 49.8		397.1	3313.4	1805.8	-3.9	6.5	336.2	242.7	58.3	26.9	0.074	31.5W
APR 22	0 53 21.1	0 15 17.8		393.4	3344.4	1822.7	-4.5	6.6	337.2	254.9	53.3	27.9	0.031	20.2W
APR 23	1 40 21.3	5 14 0.5		389.5	3377.7	1840.9	-4.9	6.3	339.2	267.1	37.0	28.9	0.006	9.1W
APR 24	2 29 5.1	10 5 19.0		385.7	3411.4	1859.2	-5.0	5.8	342.2	279.4	29.6	0.4	0.003	6.2E
APR 25	3 20 12.5	14 34 4.9		382.1	3443.5	1876.7	-4.9	4.9	346.2	291.6	26.7	3.4	0.022	17.0E
APR 26	4 14 10.9	18 23 21.2		378.8	3472.8	1892.7	-4.6	3.7	351.0	303.8	26.4	2.4	0.064	29.3E
APR 27	5 11 4.7	21 15 35.0		376.1	3498.2	1906.5	-4.1	2.3	356.6	316.1	26.7	3.4	0.128	41.8E
APR 28	6 10 25.2	22 54 56.7		373.8	3519.5	1918.1	-3.5	0.7	2.5	328.3	271.4	4.4	0.211	54.6E
APR 29	7 11 9.2	23 10 24.6		372.0	3536.6	1927.4	-2.8	-0.9	8.5	340.5	276.7	5.4	0.310	67.6E
APR 30	8 11 54.4	21 58 26.4		370.7	3549.4	1934.4	-2.0	-2.5	13.9	352.7	282.2	6.4	0.420	80.6E
MAY 1	9 11 24.4	19 23 53.3		369.8	3557.8	1939.0	-1.1	-3.9	18.4	4.9	287.4	7.4	0.534	93.8E
MAY 2	10 8 52.0	15 38 40.7		369.4	3561.3	1940.9	-0.1	-5.1	21.6	17.1	291.9	8.4	0.647	106.9E
MAY 3	11 4 6.4	10 59 15.9		369.6	3559.2	1939.8	1.0	-6.0	23.5	29.3	295.5	9.4	0.752	120.2E
MAY 4	11 57 27.3	5 44 13.6		370.5	3550.6	1935.1	2.1	-6.5	23.8	41.5	298.3	10.4	0.844	133.3E
MAY 5	12 49 32.1	0 12 40.7		372.2	3534.8	1926.5	3.1	-6.6	22.9	53.7	300.7	11.4	0.917	146.4E
MAY 6	13 41 4.8	-5 16 35.8		374.7	3511.6	1913.8	4.0	-6.3	20.7	65.9	304.1	12.4	0.968	159.3E
MAY 7	14 32 46.1	-10 25 43.7		377.9	3481.6	1897.5	4.7	-5.7	17.5	78.0	318.8	13.4	0.995	171.5E
MAY 8	15 25 6.2	-14 58 22.9		381.8	3446.3	1878.2	5.1	-4.7	13.4	90.2	70.2	14.4	0.997	173.6W
MAY 9	16 18 17.6	-18 40 33.9		386.1	3407.9	1857.3	5.2	-3.5	8.5	102.4	91.5	15.4	0.976	162.3W
MAY 10	17 12 12.1	-21 21 36.7		390.5	3369.1	1836.2	4.9	-2.1	3.3	114.6	91.9	16.4	0.935	150.5W
MAY 11	18 6 21.2	-22 55 4.1		394.8	3332.7	1816.3	4.2	-0.7	357.8	126.8	88.8	17.4	0.877	138.9W
MAY 12	19 0 3.8	-23 19 7.6		398.5	3301.2	1799.2	3.3	0.8	352.5	138.9	84.5	18.4	0.806	127.6W
MAY 13	19 52 38.4	-22 36 18.7		401.5	3276.8	1785.9	2.2	2.1	347.7	151.1	80.0	19.4	0.724	116.4W
MAY 14	20 43 35.0	-20 52 24.5		403.4	3261.2	1777.3	0.9	3.4	343.5	163.3	75.6	20.4	0.635	105.5W
MAY 15	21 32 42.3	-18 15 4.0		404.1	3255.4	1774.2	-0.4	4.5	340.2	175.5	71.7	21.4	0.542	94.6W
MAY 16	22 20 8.2	-14 52 34.9		403.6	3259.9	1776.7	-1.7	5.5	337.9	187.8	68.3	22.4	0.447	83.7W
MAY 17	23 6 16.7	-10 53 13.1		401.8	3274.7	1784.7	-2.9	6.2	336.5	200.0	65.7	23.4	0.353	72.8W
MAY 18	23 51 43.7	-6 25 8.1		398.8	3299.0	1797.9	-4.0	6.6	336.1	212.2	63.7	24.4	0.264	61.7W
MAY 19	0 37 12.9	-1 36 48.0		394.9	3331.3	1815.6	-4.7	6.7	336.8	224.4	62.5	25.4	0.182	50.4W
MAY 20	1 23 33.1	3 22 14.5		390.4	3369.7	1836.5	-5.2	6.6	338.4	236.7	61.8	26.4	0.111	38.8W
MAY 21	2 11 35.4	8 20 28.2		385.6	3411.5	1859.3	-5.4	6.0	341.1	248.9	61.2	27.4	0.054	26.8W
MAY 22	3 2 8.3	13 3 36.1		380.9	3453.6	1882.2	-5.3	5.2	344.7	261.2	58.4	28.4	0.016	14.7W
MAY 23	3 55 50.1	17 14 20.1		376.7	3492.8	1903.6	-4.8	4.0	349.4	273.4	14.0	29.4	0.001	3.4W
MAY 24	4 52 55.6	20 33 11.5		373.1	3526.2	1921.8	-4.2	2.6	354.8	285.7	273.1	0.9	0.010	11.6E
MAY 25	5 53 1.8	22 41 2.7		370.4	3551.5	1935.6	-3.3	1.0	0.8	297.9	270.9	1.9	0.045	24.5E
MAY 26	6 55 1.1	23 23 11.7		368.8	3567.6	1944.4	-2.3	-0.6	6.9	310.1	274.7	2.9	0.105	37.8E
MAY 27	7 57 14.8	22 33 29.8		368.1	3574.5	1948.1	-1.2	-2.3	12.7	322.4	279.8	3.9	0.187	51.1E
MAY 28	8 58 5.2	20 16 11.2		368.2	3572.9	1947.2	-0.1	-3.8	17.5	334.6	284.8	4.9	0.286	64.5E
MAY 29	9 56 27.7	16 44 14.0		369.1	3564.3	1942.5	1.0	-5.1	21.0	346.8	289.2	5.9	0.395	77.8E
MAY 30	10 52 3.3	12 15 33.6		370.6	3550.2	1934.9	2.0	-6.0	23.2	359.1	292.5	6.9	0.510	91.0E
MAY 31	11 45 11.4	7 9 28.5		372.5	3531.9	1924.9	3.0	-6.6	23.8	11.3	294.8	7.9	0.623	104.1E
JUN 1	12 36 34.4	1 44 37.0		374.8	3510.3	1913.1	3.8	-6.7	23.2	23.5	295.9	8.9	0.728	117.0E
JUN 2	13 27 3.8	-3 41 41.1		377.4	3486.0	1899.9	4.4	-6.5	21.4	35.7	296.0	9.9	0.821	129.8E
JUN 3	14 17 29.7	-8 53 18.4		380.3	3459.2	1885.2	4.9	-5.9	18.5	47.9	295.2	10.9	0.896	142.4E
JUN 4	15 8 33.1	-13 35 9.7		383.5	3430.2	1869.5	5.1	-5.0	14.7	60.1	294.0	11.9	0.952	154.8E
JUN 5	16 0 39.1	-17 33 22.7		387.0	3399.7	1852.9	5.1	-3.9	10.2	72.3	294.4	12.9	0.987	166.9E
JUN 6	16 53 51.2	-20 36 1.1		390.6	3368.6	1835.9	4.8	-2.5	5.1	84.4	343.7	13.9	1.000	177.9E

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	h	m	s					l	b	c					
JUL 1	14	56	2.5	-12-27-44.3	384.6	3420.7	1864.3	6.1	-5.3	15.7	30.1	289.7	9.5	0.794	125.9E
JUL 2	15	47	5.4	-16-35-2.9	388.3	3388.0	1846.5	6.0	-4.2	11.4	42.3	286.2	10.5	0.872	138.0E
JUL 3	16	39	14.1	-19-51-7.3	391.8	3357.6	1829.9	5.5	-2.9	6.5	54.5	281.8	11.5	0.933	149.8E
JUL 4	17	32	22.0	-22-6-45.8	395.1	3329.6	1814.7	4.9	-1.5	1.2	66.7	276.2	12.5	0.974	161.5E
JUL 5	18	25	59.2	-23-15-54.5	398.1	3304.5	1800.9	4.0	0.0	355.9	78.9	267.7	13.5	0.996	172.9E
JUL 6	19	19	19.7	-23-16-38.5	400.8	3282.6	1789.0	3.0	1.4	350.7	91.1	96.8	14.5	0.999	175.7W
JUL 7	20	11	35.4	-22-11-31.4	403.0	3264.7	1779.3	1.9	2.8	346.1	103.3	85.3	15.5	0.982	164.6W
JUL 8	21	2	9.6	-20-6-53.5	404.6	3251.7	1772.2	0.6	4.0	342.2	115.5	79.7	16.5	0.948	153.6W
JUL 9	21	50	46.2	-17-11-28.6	405.5	3244.8	1768.4	-0.7	5.1	339.3	127.7	75.4	17.5	0.898	142.7W
JUL 10	22	37	30.8	-13-34-53.4	405.4	3245.0	1768.6	-2.0	5.9	337.3	139.9	72.1	18.5	0.834	131.8W
JUL 11	23	22	47.3	-9-26-34.8	404.4	3253.5	1773.2	-3.3	6.5	336.3	152.1	69.8	19.5	0.758	120.9W
JUL 12	0	7	13.2	-4-55-24.3	402.2	3271.1	1782.7	-4.5	6.8	336.3	164.3	68.4	20.5	0.672	109.9W
JUL 13	0	51	35.1	0-9-49.2	398.9	3298.1	1797.5	-5.5	6.8	337.2	176.5	67.9	21.5	0.578	98.8W
JUL 14	1	36	46.1	4 41 28.3	394.5	3334.6	1817.4	-6.3	6.5	339.1	188.7	68.4	22.5	0.480	87.5W
JUL 15	2	23	43.8	9 28 31.6	389.3	3379.8	1842.0	-6.9	5.9	341.9	201.0	70.0	23.5	0.379	75.9W
JUL 16	3	13	26.1	13 58 59.7	383.4	3431.7	1870.3	-7.0	5.0	345.7	213.2	72.8	24.5	0.281	63.9W
JUL 17	4	6	43.9	17 57 8.6	377.2	3487.5	1900.7	-6.8	3.7	350.4	225.4	76.8	25.5	0.189	51.4W
JUL 18	5	4	6.5	21 3 44.3	371.3	3543.1	1931.0	-6.2	2.3	355.9	237.7	82.3	26.5	0.109	38.5W
JUL 19	6	5	21.2	22 57 55.0	366.1	3593.3	1958.4	-5.1	0.6	2.1	249.9	89.5	27.5	0.048	25.2W
JUL 20	7	9	19.1	23 21 44.8	362.1	3633.0	1980.0	-3.7	-1.1	8.3	262.2	101.1	28.5	0.010	11.5W
JUL 21	8	14	4.0	22 6 23.1	359.7	3657.6	1993.4	-2.0	-2.8	14.1	274.4	241.5	0.2	0.001	3.3E
JUL 22	9	17	31.5	19 16 14.6	359.0	3664.3	1997.1	-0.1	-4.3	18.8	286.7	276.5	1.2	0.022	16.9E
JUL 23	10	18	14.0	15 8 4.1	360.2	3653.0	1990.9	1.8	-5.5	22.0	298.9	284.0	2.2	0.072	31.0E
JUL 24	11	15	41.3	10 5 42.6	362.8	3626.0	1976.1	3.5	-6.3	23.6	311.2	288.1	3.2	0.146	44.9E
JUL 25	12	10	11.4	4 34 15.8	366.8	3587.2	1955.0	5.1	-6.7	23.6	323.4	290.3	4.2	0.240	58.5E
JUL 26	13	2	30.3	-1-3-41.7	371.5	3541.4	1930.1	6.2	-6.7	22.3	335.7	290.9	5.2	0.345	71.8E
JUL 27	13	53	33.6	-6-29-24.4	376.6	3493.1	1903.7	7.0	-6.2	19.9	347.9	290.1	6.2	0.455	84.7E
JUL 28	14	44	14.0	-11-27-38.0	381.8	3445.7	1877.9	7.3	-5.4	16.5	0.1	288.0	7.2	0.564	97.2E
JUL 29	15	35	13.8	-15-45-51.6	386.8	3401.8	1854.0	7.2	-4.4	12.4	12.3	284.8	8.2	0.666	109.3E
JUL 30	16	26	58.7	-19-13-38.8	391.2	3362.7	1832.7	6.8	-3.1	7.7	24.5	280.5	9.2	0.760	121.1E
JUL 31	17	19	33.4	-21-42-34.4	395.2	3329.1	1814.4	6.2	-1.7	2.5	36.8	275.3	10.2	0.840	132.7E
AUG 1	18	12	40.1	-23-6-44.5	398.6	3301.0	1799.1	5.2	-0.3	357.2	49.0	269.1	11.2	0.905	144.1E
AUG 2	19	5	43.3	-23-23-33.8	401.3	3278.3	1786.7	4.2	1.1	352.0	61.1	261.8	12.2	0.954	155.3E
AUG 3	19	57	59.5	-22-34-18.5	403.5	3260.7	1777.1	3.0	2.5	347.3	73.3	251.1	13.2	0.986	166.2E
AUG 4	20	48	50.5	-20-43-56.5	405.1	3248.1	1770.2	1.7	3.7	343.2	85.5	208.3	14.2	0.999	176.1E
AUG 5	21	37	53.4	-18 0-14.9	406.0	3240.5	1766.1	0.4	4.8	340.0	97.7	94.9	15.2	0.994	171.0W
AUG 6	22	25	5.1	-14-32-36.1	406.3	3238.4	1764.9	-0.9	5.7	337.8	109.9	80.9	16.2	0.971	160.4W
AUG 7	23	10	40.4	-10-30-49.9	405.8	3242.2	1767.0	-2.2	6.3	336.5	122.1	75.3	17.2	0.932	149.7W
AUG 8	23	55	8.8	-6-4-31.8	404.5	3252.6	1772.7	-3.5	6.7	336.3	134.3	72.3	18.2	0.877	138.8W
AUG 9	0	39	10.0	-1-22-51.7	402.3	3270.5	1782.4	-4.6	6.7	336.9	146.5	70.8	19.2	0.808	127.8W
AUG 10	1	23	30.9	3 25 11.1	399.1	3296.4	1796.6	-5.6	6.5	338.5	158.7	70.6	20.2	0.726	116.8W
AUG 11	2	9	3.5	8 10 10.5	395.0	3330.8	1815.3	-6.5	6.0	341.0	170.9	71.5	21.2	0.634	105.5W
AUG 12	2	56	42.8	12 41 21.0	390.0	3373.3	1838.5	-7.1	5.1	344.4	183.1	73.7	22.2	0.535	93.9W
AUG 13	3	47	21.6	16 45 40.8	384.3	3423.1	1865.6	-7.4	4.0	348.7	195.3	77.0	23.2	0.431	82.0W
AUG 14	4	41	41.3	20 7 13.1	378.3	3478.1	1895.6	-7.3	2.7	353.8	207.6	81.6	24.2	0.327	69.6W
AUG 15	5	39	56.6	22 27 30.7	372.2	3535.1	1926.6	-6.8	1.2	359.5	219.8	87.4	25.2	0.228	56.9W
AUG 16	6	41	38.2	23 27 59.9	366.5	3589.4	1956.2	-5.8	-0.5	5.6	232.0	94.5	26.2	0.139	43.7W
AUG 17	7	45	25.7	22 54 41.4	361.9	3635.7	1981.5	-4.4	-2.2	11.6	244.3	103.0	27.2	0.068	30.1W
AUG 18	8	49	26.6	20 43 33.4	358.6	3668.4	1999.3	-2.6	-3.7	16.8	256.5	115.4	28.2	0.020	16.2W
AUG 19	9	51	55.4	17 3 20.6	357.2	3683.1	2007.3	-0.6	-5.0	20.7	268.8	175.4	29.2	0.001	4.2W
AUG 20	10	51	48.4	12 13 48.1	357.7	3677.8	2004.4	1.5	-6.0	23.0	281.0	272.6	0.9	0.014	13.4E
AUG 21	11	48	53.2	6 40 38.7	360.1	3653.4	1991.1	3.6	-6.5	23.7	293.3	283.7	1.9	0.056	27.2E
AUG 22	12	43	35.5	0 50 14.5	364.1	3613.3	1969.3	5.3	-6.6	22.9	305.5	287.2	2.9	0.123	41.0E
AUG 23	13	36	40.3	-4-53-53.6	369.3	3562.8	1941.7	6.7	-6.2	20.8	317.7	287.9	3.9	0.210	54.4E
AUG 24	14	28	56.5	-10-12-28.9	375.1	3507.5	1911.6	7.6	-5.5	17.6	330.0	286.7	4.9	0.309	67.4E
AUG 25	15	21	5.8	-14-50-27.1	381.1	3452.1	1881.4	7.9	-4.5	13.6	342.2	284.1	5.9	0.414	79.9E
AUG 26	16	13	35.8	-18-36-19.8	386.9	3400.4	1853.2	7.9	-3.2	8.9	354.4	280.4	6.9	0.519	92.0E
AUG 27	17	6	35.5	-21-21-44.6	392.2	3354.9	1828.4	7.4	-1.9	3.8	6.6	275.6	7.9	0.620	103.8E
AUG 28	17	59	53.6	-23-1-18.5	396.7	3316.8	1807.7	6.6	-0.5	358.5	18.8	270.2	8.9	0.714	115.2E
AUG 29	18	53	2.2	-23-32-50.9	400.3	3286.7	1791.3	5.5	0.9	353.2	31.0	264.3	9.9	0.798	126.4E
AUG 30	19	45	24.6	-22-57-34.6	403.0	3264.3	1779.1	4.3	2.3	348.4	43.2	258.0	10.9	0.869	137.4E
AUG 31	20	36	27.1	-21-19-56.2	404.9	3249.1	1770.8	3.0	3.5	344.1	55.4	251.2	11.9	0.926	148.3E
SEP 1	21	25	47.9	-18-46-57.9	406.0	3240.5	1766.1	1.7	4.6	340.7	67.6	242.7	12.9	0.967	159.0E
SEP 2	22	13	21.5	-15-27-23.6	406.3	3237.9	1764.6	0.3	5.5	338.3	79.8	226.5	13.9	0.991	169.3E
SEP 3	22	59	19.1	-11-30-45.9	406.0	3240.7	1766.2	-0.9	6.1	336.8	91.9	144.8	14.9	0.998	175.2W
SEP 4	23	44	4.9	-7-6											

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(d ' ")					l	b	c					
OCT 1	23	32	32.8	-8-18-31.9	404.5	3252.4	1772.6	-1.0	6.5	336.3	73.6	231.4	13.6	0.975	161.9E
OCT 2	0	16	54.9	-3-36-33.7	402.8	3265.9	1779.9	-2.2	6.6	336.6	85.8	208.8	14.6	0.995	171.9E
OCT 3	1	1	15.7	1 16 34.8	400.6	3283.8	1789.7	-3.2	6.4	337.7	97.9	112.9	15.6	0.997	173.2W
OCT 4	1	46	18.0	6 10 28.0	398.0	3305.5	1801.5	-4.0	5.9	339.8	110.1	84.3	16.6	0.979	163.3W
OCT 5	2	32	45.7	10 53 43.3	395.0	3330.7	1815.2	-4.7	5.2	342.7	122.2	79.2	17.6	0.943	152.2W
OCT 6	3	21	20.9	15 13 43.5	391.7	3359.1	1830.7	-5.3	4.1	346.5	134.4	79.1	18.6	0.888	140.8W
OCT 7	4	12	37.8	18 56 29.3	388.0	3390.9	1848.0	-5.7	2.9	351.0	146.6	81.4	19.6	0.816	129.1W
OCT 8	5	6	54.4	21 47 0.4	384.0	3425.7	1867.0	-5.9	1.5	356.3	158.8	85.3	20.6	0.729	117.1W
OCT 9	6	4	2.1	23 30 24.7	379.9	3463.3	1887.5	-5.9	0.0	1.9	170.9	90.4	21.6	0.629	104.8W
OCT 10	7	3	20.3	23 54 8.3	375.6	3502.6	1908.9	-5.6	-1.6	7.7	183.1	96.2	22.6	0.521	92.3W
OCT 11	8	3	40.9	22 50 41.5	371.5	3541.9	1930.3	-5.0	-3.1	13.2	195.3	102.2	23.6	0.410	79.5W
OCT 12	9	3	48.1	20 19 58.4	367.7	3578.4	1950.2	-4.0	-4.4	17.8	207.5	108.1	24.6	0.300	66.3W
OCT 13	10	2	42.4	16 30 0.2	364.6	3608.6	1966.7	-2.7	-5.5	21.2	219.7	113.6	25.6	0.199	52.9W
OCT 14	10	59	56.0	11 35 54.5	362.5	3628.9	1977.7	-1.1	-6.2	23.2	231.9	118.6	26.6	0.113	39.3W
OCT 15	11	55	34.1	5 57 52.6	361.9	3635.8	1981.5	0.7	-6.5	23.6	244.1	124.1	27.6	0.049	25.6W
OCT 16	12	50	5.2	0 -1 -5.5	362.7	3627.3	1976.8	2.5	-6.4	22.6	256.3	136.5	28.6	0.011	12.2W
OCT 17	13	44	8.7	-5-57-16.7	365.1	3603.2	1963.7	4.1	-5.9	20.3	268.6	231.3	0.2	0.002	5.2E
OCT 18	14	38	22.2	-11-28 -7.2	369.0	3565.7	1943.3	5.5	-4.9	16.9	280.8	275.0	1.2	0.021	16.6E
OCT 19	15	33	11.6	-16-13-51.9	373.9	3518.4	1917.5	6.4	-3.7	12.5	293.0	278.7	2.2	0.065	29.4E
OCT 20	16	28	42.9	-19-58-57.0	379.6	3466.2	1889.1	6.9	-2.3	7.4	305.2	276.9	3.2	0.129	42.0E
OCT 21	17	24	38.3	-22-33 -1.4	385.4	3413.5	1860.4	6.9	-0.8	2.0	317.4	273.0	4.2	0.208	54.2E
OCT 22	18	20	19.9	-23-51-27.1	391.0	3364.6	1833.7	6.5	0.7	356.4	329.6	268.2	5.2	0.298	66.0E
OCT 23	19	15	0.9	-23-55 -5.7	396.0	3322.4	1810.7	5.7	2.1	351.2	341.8	263.0	6.2	0.393	77.5E
OCT 24	20	7	59.5	-22-49-15.2	400.0	3289.0	1792.5	4.7	3.4	346.5	354.0	257.9	7.2	0.489	88.6E
OCT 25	20	58	50.8	-20-42 -3.9	402.9	3265.6	1779.8	3.5	4.5	342.6	6.2	253.1	8.2	0.585	99.6E
OCT 26	21	47	30.7	-17-42-55.1	404.5	3252.4	1772.6	2.2	5.4	339.6	18.3	248.9	9.2	0.676	110.4E
OCT 27	22	34	14.2	-14 -1-20.5	404.9	3249.1	1770.8	0.9	6.1	337.5	30.5	245.4	10.2	0.760	121.2E
OCT 28	23	19	30.2	-9-46-32.2	404.2	3255.0	1774.0	-0.4	6.5	336.5	42.7	242.3	11.2	0.836	132.0E
OCT 29	0	3	56.4	-5 -7-27.8	402.5	3268.7	1781.4	-1.5	6.7	336.4	54.8	239.7	12.2	0.899	142.9E
OCT 30	0	48	15.9	0-13-16.4	400.0	3288.7	1792.4	-2.5	6.5	337.3	67.0	236.8	13.2	0.949	153.9E
OCT 31	1	33	14.7	4 46 5.6	397.1	3313.5	1805.9	-3.3	6.1	339.1	79.1	230.9	14.2	0.983	165.0E
NOV 1	2	19	39.1	9 39 19.6	393.7	3341.4	1821.1	-4.0	5.3	341.8	91.3	195.3	15.2	0.998	175.1E
NOV 2	3	8	12.7	14 13 18.4	390.3	3370.8	1837.1	-4.4	4.3	345.4	103.4	94.1	16.2	0.993	170.5W
NOV 3	3	59	29.9	18 13 3.6	386.9	3400.5	1853.3	-4.7	3.1	349.8	115.6	84.5	17.2	0.967	159.0W
NOV 4	4	53	47.2	21 22 22.4	383.6	3429.7	1869.2	-4.8	1.6	355.0	127.7	85.3	18.2	0.920	147.0W
NOV 5	5	50	52.2	23 25 23.4	380.5	3457.8	1884.5	-4.7	0.1	0.6	139.9	89.1	19.2	0.853	134.7W
NOV 6	6	49	58.8	24 9 10.0	377.6	3484.7	1899.2	-4.4	-1.5	6.4	152.0	94.2	20.2	0.768	122.2W
NOV 7	7	49	53.4	23 26 31.5	374.8	3510.0	1912.9	-4.0	-3.0	12.0	164.2	99.7	21.2	0.669	109.6W
NOV 8	8	49	17.3	21 17 54.2	372.4	3533.3	1925.6	-3.3	-4.3	16.7	176.3	105.2	22.2	0.560	96.7W
NOV 9	9	47	11.2	17 51 15.0	370.2	3553.7	1936.8	-2.4	-5.5	20.4	188.5	110.0	23.2	0.446	83.7W
NOV 10	10	43	10.4	13 20 16.6	368.5	3569.9	1945.6	-1.3	-6.2	22.7	200.7	113.9	24.2	0.334	70.5W
NOV 11	11	37	24.8	8 2 17.8	367.5	3580.0	1951.1	-0.1	-6.6	23.6	212.9	116.7	25.2	0.230	57.2W
NOV 12	12	30	28.4	2 16 35.5	367.3	3582.0	1952.2	1.3	-6.6	23.1	225.1	118.7	26.2	0.140	43.8W
NOV 13	13	23	7.0	-3-36-32.3	368.1	3574.3	1948.0	2.6	-6.2	21.3	237.3	120.1	27.2	0.069	30.5W
NOV 14	14	16	7.3	-9-16-26.0	370.0	3556.0	1938.0	3.8	-5.3	18.4	249.5	122.7	28.2	0.023	17.2W
NOV 15	15	10	5.9	-14-22-56.3	373.0	3527.5	1922.5	4.8	-4.2	14.4	261.7	147.3	29.2	0.002	4.8W
NOV 16	16	5	19.8	-18-37-43.2	376.9	3490.6	1902.4	5.5	-2.8	9.6	273.9	268.0	0.7	0.007	9.5E
NOV 17	17	1	38.8	-21-46 -2.5	381.5	3448.2	1879.3	5.8	-1.3	4.2	286.1	273.3	1.7	0.036	21.8E
NOV 18	17	58	24.1	-23-38-34.5	386.5	3403.6	1855.0	5.7	0.3	358.6	298.3	270.5	2.7	0.086	33.9E
NOV 19	18	54	37.3	-24-12-31.9	391.5	3360.4	1831.4	5.3	1.8	353.1	310.5	265.9	3.7	0.152	45.7E
NOV 20	19	49	18.8	-23-31-25.1	396.1	3321.8	1810.4	4.6	3.1	348.1	322.6	261.0	4.7	0.230	57.2E
NOV 21	20	41	45.7	-21-43-23.2	399.8	3290.3	1793.2	3.6	4.3	343.8	334.8	256.3	5.7	0.317	68.4E
NOV 22	21	31	41.3	-18-58-55.7	402.6	3267.9	1781.0	2.5	5.3	340.5	347.0	252.2	6.7	0.410	79.4E
NOV 23	22	19	14.4	-15-28-52.6	404.1	3255.7	1774.3	1.2	6.1	338.1	359.2	248.8	7.7	0.504	90.3E
NOV 24	23	4	53.6	-11-23-18.4	404.3	3254.0	1773.4	-0.1	6.6	336.8	11.3	246.2	8.7	0.598	101.1E
NOV 25	23	49	19.3	-6-51-18.4	403.2	3262.7	1778.2	-1.3	6.8	336.4	23.5	244.4	9.7	0.688	111.9E
NOV 26	0	33	19.2	-2 -1-24.8	401.0	3281.0	1788.1	-2.4	6.7	336.9	35.6	243.4	10.7	0.773	122.9E
NOV 27	1	17	45.0	2 57 36.0	397.8	3307.5	1802.6	-3.4	6.3	338.4	47.8	243.2	11.7	0.848	134.1E
NOV 28	2	3	29.5	7 55 46.7	393.9	3340.2	1820.4	-4.1	5.7	340.8	59.9	243.7	12.7	0.912	145.5E
NOV 29	2	51	24.3	12 41 3.5	389.6	3376.8	1840.3	-4.5	4.7	344.1	72.1	244.5	13.7	0.961	157.1E
NOV 30	3	42	14.1	16 58 41.2	385.3	3414.6	1861.0	-4.7	3.5	348.3	84.2	243.3	14.7	0.991	169.1E
DEC 1	4	36	25.8	20 31 23.0	381.2	3451.0	1880.8	-4.7	2.0	353.3	96.3	124.7	15.7	1.000	177.8W
DEC 2	5	33	55.7	23 0 51.0	377.7	3483.5	1898.5	-4.4	0.4	358.9	108.5	88.6	16.7	0.985	165.9W
DEC 3	6	33	57.7	24 10 53.8	374.8	3510.5	1913.2	-3.8	-1.2	4.9	120.6	91.5	17.7	0.946	153.1W
DEC 4	7	35	7.5	23 51 30.9	372.6	3531.0	1924.4	-3.1	-2.8	10.6	132.7	96.6	18.7	0.885	

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JAN 1	8 16 7.1	22 47 6.2	366.5	3590.1	1956.6	-2.6	-3.8	14.1	113.2	95.1	17.1	0.967	159.1W		
JAN 2	9 17 27.4	19 54 30.1	365.5	3600.0	1962.0	-1.3	-5.1	18.6	125.4	101.8	18.1	0.913	145.5W		
JAN 3	10 16 11.0	15 46 24.7	365.7	3597.8	1960.8	0.2	-6.0	21.7	137.5	106.8	19.1	0.835	132.0W		
JAN 4	11 11 59.7	10 43 56.2	367.0	3585.2	1954.0	1.5	-6.6	23.3	149.6	110.2	20.1	0.740	118.5W		
JAN 5	12 5 18.5	5 9 18.3	369.1	3564.9	1942.9	2.8	-6.8	23.5	161.8	112.1	21.1	0.633	105.2W		
JAN 6	12 56 57.3	0-36-45.8	371.7	3539.5	1929.0	3.8	-6.5	22.3	173.9	112.6	22.1	0.520	92.1W		
JAN 7	13 47 54.8	-6-15-48.4	374.7	3511.2	1913.6	4.6	-5.8	20.0	186.1	111.7	23.1	0.408	79.2W		
JAN 8	14 39 7.2	-11-31-16.7	377.9	3481.6	1897.5	5.2	-4.8	16.7	198.3	109.5	24.1	0.302	66.6W		
JAN 9	15 31 18.9	-16-8-0.8	381.2	3451.7	1881.2	5.5	-3.6	12.6	210.4	106.0	25.1	0.208	54.1W		
JAN 10	16 24 54.2	-19-52-8.3	384.5	3421.9	1865.0	5.5	-2.2	7.8	222.6	101.2	26.1	0.128	41.9W		
JAN 11	17 19 49.9	-22-31-48.3	387.8	3392.5	1848.9	5.3	-0.7	2.4	234.8	95.0	27.1	0.067	29.8W		
JAN 12	18 15 32.0	-23-58-40.3	391.1	3363.6	1833.2	4.9	0.8	356.9	247.0	86.7	28.1	0.025	18.1W		
JAN 13	19 11 3.3	-24-9-31.0	394.4	3335.7	1818.0	4.3	2.3	351.6	259.2	68.2	29.1	0.003	6.7W		
JAN 14	20 5 20.2	-23-6-59.0	397.5	3309.4	1803.6	3.6	3.6	346.7	271.4	286.8	0.4	0.002	5.7E		
JAN 15	20 57 32.4	-20-58-50.0	400.4	3285.8	1790.8	2.7	4.8	342.7	283.5	266.0	1.4	0.021	16.6E		
JAN 16	21 47 15.1	-17-56-2.1	402.8	3266.2	1780.1	1.6	5.7	339.7	295.7	258.8	2.4	0.057	27.6E		
JAN 17	22 34 30.9	-14-10-35.6	404.5	3252.1	1772.4	0.4	6.3	337.6	307.9	254.3	3.4	0.109	38.5E		
JAN 18	23 19 44.4	-9-53-58.8	405.4	3245.0	1768.6	-0.8	6.7	336.6	320.1	251.3	4.4	0.175	49.4E		
JAN 19	0 3 34.7	-5-16-26.0	405.3	3246.3	1769.2	-2.1	6.8	336.5	332.3	249.5	5.4	0.252	60.1E		
JAN 20	0 46 49.6	0-27-1.5	404.0	3256.9	1775.0	-3.4	6.6	337.4	344.4	248.7	6.4	0.338	70.9E		
JAN 21	1 30 22.5	4 25 45.7	401.4	3277.6	1786.3	-4.6	6.1	339.1	356.6	249.1	7.4	0.430	81.8E		
JAN 22	2 15 10.2	9 13 6.5	397.7	3308.5	1803.2	-5.6	5.3	341.6	8.8	250.4	8.4	0.527	92.9E		
JAN 23	3 2 10.8	13 44 44.9	392.8	3349.1	1825.3	-6.4	4.3	345.0	20.9	253.0	9.4	0.624	104.2E		
JAN 24	3 52 18.8	17 47 52.5	387.2	3397.8	1851.8	-6.9	3.1	349.2	33.1	256.7	10.4	0.720	115.9E		
JAN 25	4 46 15.2	21 6 28.8	381.1	3452.0	1881.4	-7.0	1.6	354.3	45.2	261.8	11.4	0.809	128.0E		
JAN 26	5 44 11.2	23 21 55.8	375.0	3508.1	1911.9	-6.7	0.0	360.0	57.3	268.4	12.4	0.886	140.5E		
JAN 27	6 45 30.6	24 15 41.9	369.4	3561.2	1940.8	-5.9	-1.6	6.0	69.5	277.0	13.4	0.948	153.5E		
JAN 28	7 48 45.6	23 34 22.9	364.8	3606.1	1965.3	-4.7	-3.2	11.8	81.6	290.9	14.4	0.987	166.7E		
JAN 29	8 51 59.5	21 15 0.0	361.6	3637.9	1982.7	-3.1	-4.6	16.9	93.7	26.4	15.4	0.999	176.4W		
JAN 30	9 53 28.7	17 27 14.8	360.1	3653.4	1991.1	-1.3	-5.7	20.6	105.9	93.6	16.4	0.982	164.7W		
JAN 31	10 52 16.6	12 31 4.4	360.3	3651.3	1989.9	0.6	-6.4	22.9	118.0	103.5	17.4	0.937	150.9W		
FEB 1	11 48 19.0	6 51 30.8	362.1	3632.9	1979.9	2.4	-6.6	23.5	130.1	108.0	18.4	0.867	137.1W		
FEB 2	12 42 9.4	0 53 50.2	365.3	3601.7	1962.9	4.1	-6.5	22.7	142.3	109.8	19.4	0.777	123.5W		
FEB 3	13 34 40.0	-4-59-17.5	369.4	3561.8	1941.2	5.3	-5.9	20.7	154.4	109.8	20.4	0.673	110.2W		
FEB 4	14 26 45.8	-10-28-40.8	374.0	3517.8	1917.2	6.2	-4.9	17.6	166.6	108.2	21.4	0.564	97.2W		
FEB 5	15 19 13.9	-15-18-21.1	378.8	3473.1	1892.8	6.7	-3.7	13.6	178.7	105.2	22.4	0.454	84.6W		
FEB 6	16 12 34.7	-19-15-2.7	383.5	3430.5	1869.6	6.8	-2.3	8.9	190.9	101.0	23.4	0.349	72.3W		
FEB 7	17 6 55.4	-22-8-8.0	387.9	3391.4	1848.3	6.5	-0.9	3.7	203.1	95.7	24.4	0.253	60.3W		
FEB 8	18 1 56.0	-23-50-10.0	391.9	3356.8	1829.4	6.0	0.6	358.3	215.2	89.5	25.4	0.170	48.6W		
FEB 9	18 56 54.0	-24-17-48.1	395.5	3326.6	1813.0	5.3	2.0	352.9	227.4	82.4	26.4	0.102	37.1W		
FEB 10	19 50 55.9	-23-32-29.2	398.6	3300.8	1798.9	4.5	3.3	348.0	239.6	74.2	27.4	0.050	25.9W		
FEB 11	20 43 13.8	-21-40-14.7	401.2	3279.1	1787.1	3.5	4.5	343.8	251.8	62.1	28.4	0.017	15.0W		
FEB 12	21 33 18.7	-18-50-30.6	403.4	3261.7	1777.6	2.4	5.4	340.5	264.0	22.2	29.4	0.002	5.4W		
FEB 13	22 21 4.7	-15-14-29.9	405.0	3248.5	1770.5	1.2	6.1	338.2	276.2	280.4	0.7	0.006	8.8E		
FEB 14	23 6 47.0	-11-3-45.1	406.0	3240.3	1766.0	0.0	6.5	336.9	288.4	261.7	1.7	0.027	19.0E		
FEB 15	23 50 55.9	-6-29-12.7	406.4	3237.6	1764.5	-1.3	6.6	336.5	300.6	255.4	2.7	0.066	29.6E		
FEB 16	0 34 11.8	-1-40-55.0	405.9	3241.5	1766.6	-2.6	6.5	337.1	312.8	252.6	3.7	0.119	40.3E		
FEB 17	1 17 21.1	3 11 50.5	404.5	3252.9	1772.8	-3.9	6.0	338.5	325.0	251.6	4.7	0.187	51.1E		
FEB 18	2 1 14.1	7 59 59.2	402.0	3272.7	1783.6	-5.1	5.3	340.8	337.1	252.0	5.7	0.266	61.9E		
FEB 19	2 46 43.4	12 33 54.6	398.5	3301.6	1799.4	-6.2	4.4	343.9	349.3	253.7	6.7	0.355	73.0E		
FEB 20	3 34 41.0	16 42 35.0	393.9	3339.7	1820.1	-7.0	3.2	347.7	1.5	256.6	7.7	0.451	84.2E		
FEB 21	4 25 51.7	20 12 47.5	388.5	3386.5	1845.6	-7.7	1.9	352.3	13.7	260.7	8.7	0.552	95.8E		
FEB 22	5 20 42.7	22 48 55.6	382.4	3440.3	1875.0	-7.9	0.4	357.6	25.8	266.0	9.7	0.654	107.8E		
FEB 23	6 19 8.8	24 14 3.7	376.1	3498.6	1906.7	-7.7	-1.1	3.4	38.0	272.4	10.7	0.752	120.2E		
FEB 24	7 20 20.8	24 12 54.6	369.9	3557.1	1938.6	-7.0	-2.6	9.3	50.1	279.8	11.7	0.842	133.0E		
FEB 25	8 22 50.8	22 36 19.8	364.4	3610.5	1967.7	-5.8	-4.1	14.6	62.3	288.1	12.7	0.917	146.3E		
FEB 26	9 24 58.9	19 25 24.5	360.2	3653.1	1990.9	-4.1	-5.2	19.0	74.4	299.2	13.7	0.970	159.9E		
FEB 27	10 25 28.2	14 52 41.7	357.6	3679.4	2005.3	-2.1	-6.1	22.0	86.5	331.5	14.7	0.996	172.8E		
FEB 28	11 23 45.4	9 19 53.4	356.9	3686.0	2008.9	0.1	-6.5	23.4	98.7	83.9	15.7	0.992	169.9W		
MAR 1	12 19 59.7	3 13 30.5	358.3	3672.4	2001.4	2.2	-6.4	23.2	110.8	102.0	16.7	0.958	156.4W		
MAR 2	13 14 47.5	-2-59-24.0	361.4	3640.7	1984.2	4.2	-5.9	21.5	123.0	106.2	17.7	0.898	142.6W		
MAR 3	14 8 55.3	-8-54-14.6	365.9	3595.7	1959.7	5.7	-5.0	18.7	135.1	106.6	18.7	0.815	129.0W		
MAR 4	15 3 6.1	-14-10-23.5	371.4	3542.9	1930.9	6.8	-3.8	14.9	147.3	104.7	19.7	0.719	115.8W		
MAR 5	15 57 48.5	-18-31-36.4	377.2	3487.5	1900.7	7.4	-2.4	10.2	159.4	101.2	20.7	0.614	103.0W		
MAR 6	16 53 9.4	-21-46-4.4	383.1	3434.0	1871.5	7.6	-1.0	5.0	171.6	96.6	21.7	0.508	90.7W		
MAR 7	17 48 50.7	-23-46-29.7	388.6	3385.2	1844.9	7.3	0.5	359.6	183.8	91.0	22.7	0.404	78.8W		
MAR 8	18 44 14.1	-24-30-16.9	393.5	3343.0	1822.0	6.7	1.9	354.1	196.0	85.0	23.7	0.307	67.2W		
MAR 9	19 38 31.8	-23-59-31.8	397.7	3308.2	1803.0	5.8	3.3	349.1	208.1	78.8	24.7	0.220	55.9W		
MAR 10	20 31 1.8	-22-20-24.5	401.0	3280.7	1788.0	4.8	4.4	344.7	220.3	72.5	25.7	0.146			

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(d ' ")					l	b	c					
APR 1	15 36 41.5	-17-13 -9.4		369.0	3565.0	1942.9	6.5	-2.7	12.1	128.4	101.4	17.9	0.855	135.1W	
APR 2	16 33 49.2	-21 -2-20.9		375.1	3507.2	1911.4	7.2	-1.2	6.9	140.5	97.8	18.9	0.767	122.1W	
APR 3	17 31 20.7	-23-33-10.1		381.5	3448.9	1879.7	7.5	0.4	1.3	152.7	92.9	19.9	0.669	109.6W	
APR 4	18 28 29.2	-24-41-37.0		387.6	3394.3	1849.9	7.3	1.9	355.7	164.9	87.4	20.9	0.567	97.6W	
APR 5	19 24 18.4	-24-29-59.2		393.1	3346.5	1823.8	6.8	3.2	350.4	177.1	81.6	21.9	0.466	85.9W	
APR 6	20 18 0.8	-23 -5-30.8		397.8	3307.0	1802.3	5.9	4.4	345.8	189.3	76.0	22.9	0.368	74.6W	
APR 7	21 9 10.1	-20-38-25.2		401.5	3276.6	1785.7	4.9	5.3	342.0	201.5	70.9	23.9	0.278	63.5W	
APR 8	21 57 44.6	-17-20 -1.8		404.2	3255.3	1774.1	3.7	6.0	339.2	213.7	66.4	24.9	0.197	52.6W	
APR 9	22 44 2.5	-13-21-31.4		405.7	3242.5	1767.2	2.4	6.5	337.5	225.9	62.3	25.9	0.128	41.8W	
APR 10	23 28 36.1	-8-53-24.4		406.4	3237.4	1764.4	1.1	6.6	336.6	238.1	58.2	26.9	0.072	31.0W	
APR 11	0 12 5.1	-4 -5-33.6		406.2	3239.1	1765.3	-0.2	6.5	336.8	250.3	53.0	27.9	0.031	20.4W	
APR 12	0 55 13.3	0 52 25.7		405.2	3246.7	1769.4	-1.4	6.1	337.8	262.6	39.8	28.9	0.008	10.0W	
APR 13	1 38 46.1	5 50 47.3		403.6	3259.4	1776.4	-2.6	5.4	339.6	274.8	311.4	0.2	0.002	4.6E	
APR 14	2 23 28.8	10 39 6.3		401.5	3276.6	1785.8	-3.7	4.5	342.3	287.0	265.4	1.2	0.014	13.6E	
APR 15	3 10 4.1	15 5 55.6		398.9	3298.3	1797.6	-4.7	3.4	345.7	299.2	260.0	2.2	0.045	24.5E	
APR 16	3 59 8.2	18 58 33.9		395.8	3324.2	1811.7	-5.6	2.1	349.9	311.5	260.6	3.2	0.095	35.8E	
APR 17	4 51 3.5	22 3 15.7		392.2	3354.5	1828.2	-6.3	0.7	354.8	323.7	263.6	4.2	0.161	47.3E	
APR 18	5 45 49.8	24 6 1.1		388.2	3389.4	1847.2	-6.8	-0.8	0.1	335.9	268.2	5.2	0.243	59.0E	
APR 19	6 42 57.8	24 54 14.2		383.7	3428.4	1868.5	-7.1	-2.3	5.7	348.1	273.6	6.2	0.338	71.0E	
APR 20	7 41 30.9	24 19 1.1		379.0	3471.0	1891.7	-7.0	-3.7	11.1	0.3	279.5	7.2	0.443	83.3E	
APR 21	8 40 19.8	22 17 20.2		374.2	3515.5	1916.0	-6.5	-4.9	15.9	12.5	285.3	8.2	0.553	95.9E	
APR 22	9 38 24.2	18 53 8.4		369.6	3559.5	1939.9	-5.6	-5.8	19.8	24.7	290.5	9.2	0.663	108.9E	
APR 23	10 35 11.3	14 17 4.4		365.5	3599.3	1961.6	-4.4	-6.4	22.3	36.9	295.0	10.2	0.768	122.3E	
APR 24	11 30 40.7	8 45 19.9		362.4	3630.8	1978.8	-2.8	-6.6	23.4	49.1	298.7	11.2	0.860	135.9E	
APR 25	12 25 19.5	2 38 20.5		360.5	3649.8	1989.1	-1.0	-6.4	23.0	61.2	301.9	12.2	0.932	149.8E	
APR 26	13 19 50.4	-3-40-29.0		360.2	3652.9	1990.8	0.9	-5.7	21.3	73.4	307.2	13.2	0.980	163.6E	
APR 27	14 14 59.3	-9-46 -9.0		361.6	3638.7	1983.1	2.7	-4.6	18.3	85.6	353.2	14.2	0.999	176.0E	
APR 28	15 11 22.1	-15-13-55.2		364.6	3608.2	1966.5	4.3	-3.2	14.2	97.7	94.0	15.2	0.989	167.7W	
APR 29	16 9 11.3	-19-41-41.4		369.1	3564.7	1942.8	5.6	-1.7	9.2	109.9	98.0	16.2	0.951	154.4W	
APR 30	17 8 6.2	-22-52-36.9		374.5	3512.7	1914.4	6.4	0.0	3.6	122.1	95.1	17.2	0.891	141.4W	
MAY 1	18 7 12.6	-24-37-22.2		380.5	3457.4	1884.3	6.8	1.5	357.8	134.3	90.2	18.2	0.814	128.8W	
MAY 2	19 5 17.2	-24-55 -6.2		386.6	3403.4	1854.9	6.7	3.0	352.2	146.5	84.7	19.2	0.725	116.6W	
MAY 3	20 1 11.7	-23-52-23.2		392.2	3354.5	1828.2	6.2	4.3	347.2	158.7	79.3	20.2	0.629	104.8W	
MAY 4	20 54 13.7	-21-40-34.4		397.1	3313.3	1805.8	5.5	5.3	343.1	170.9	74.3	21.2	0.531	93.4W	
MAY 5	21 44 13.0	-18-32-46.7		400.9	3281.4	1788.4	4.5	6.1	339.9	183.1	70.0	22.2	0.434	82.3W	
MAY 6	22 31 27.3	-14-41-42.4		403.6	3259.5	1776.4	3.3	6.6	337.9	195.3	66.6	23.2	0.341	71.3W	
MAY 7	23 16 32.3	-10-18-41.5		405.1	3247.5	1769.9	2.1	6.8	336.8	207.5	64.0	24.2	0.254	60.4W	
MAY 8	0 0 12.9	-5-33-42.4		405.5	3244.8	1768.4	0.8	6.7	336.7	219.7	62.1	25.2	0.177	49.6W	
MAY 9	0 43 18.6	0-35-55.2		404.8	3250.5	1771.5	-0.5	6.3	337.5	232.0	60.9	26.2	0.111	38.7W	
MAY 10	1 26 39.5	4 25 32.0		403.2	3263.3	1778.5	-1.7	5.7	339.1	244.2	60.0	27.2	0.058	27.8W	
MAY 11	2 11 5.6	9 20 46.2		400.9	3281.9	1788.6	-2.8	4.8	341.5	256.4	58.2	28.2	0.021	16.8W	
MAY 12	2 57 23.8	13 58 30.8		398.1	3304.9	1801.2	-3.7	3.7	344.7	268.7	45.1	29.2	0.003	5.8W	
MAY 13	3 46 13.5	18 5 43.9		395.0	3331.0	1815.4	-4.5	2.3	348.8	280.9	272.7	0.6	0.003	6.6E	
MAY 14	4 37 59.6	21 27 50.5		391.6	3359.4	1830.9	-5.1	0.9	353.5	293.1	263.9	1.6	0.024	18.0E	
MAY 15	5 32 42.2	23 49 43.8		388.2	3389.1	1847.1	-5.6	-0.6	358.8	305.4	266.4	2.6	0.066	29.8E	
MAY 16	6 29 49.1	24 57 49.1		384.7	3419.8	1863.8	-5.8	-2.1	4.4	317.6	271.1	3.6	0.128	41.8E	
MAY 17	7 28 17.3	24 42 45.4		381.2	3451.1	1880.9	-5.8	-3.5	9.9	329.9	276.6	4.6	0.208	54.1E	
MAY 18	8 26 49.8	23 1 43.0		377.8	3482.6	1898.0	-5.5	-4.8	14.9	342.1	282.2	5.6	0.303	66.6E	
MAY 19	9 24 19.8	19 59 6.8		374.4	3513.7	1915.0	-4.9	-5.8	18.9	354.3	287.2	6.6	0.409	79.4E	
MAY 20	10 20 11.3	15 45 32.5		371.3	3543.2	1931.0	-4.1	-6.5	21.7	6.5	291.4	7.6	0.522	92.3E	
MAY 21	11 14 24.2	10 35 53.1		368.6	3569.4	1945.3	-3.0	-6.8	23.2	18.7	294.5	8.6	0.635	105.5E	
MAY 22	12 7 28.2	4 47 44.3		366.5	3589.9	1956.5	-1.7	-6.6	23.2	30.9	296.4	9.6	0.743	118.9E	
MAY 23	13 0 11.3	-1-19-23.3		365.2	3602.3	1963.2	-0.3	-6.1	22.0	43.1	297.0	10.6	0.838	132.5E	
MAY 24	13 53 27.8	-7-24-21.4		365.1	3603.9	1964.1	1.2	-5.1	19.5	55.3	296.5	11.6	0.915	146.1E	
MAY 25	14 48 7.2	-13 -4-48.4		366.1	3593.4	1958.4	2.6	-3.8	16.0	67.5	295.3	12.6	0.969	159.7E	
MAY 26	15 44 40.5	-17-58-17.1		368.5	3570.4	1945.9	3.8	-2.3	11.4	79.7	297.9	13.6	0.996	173.2E	
MAY 27	16 43 7.0	-21-44-28.5		372.0	3536.3	1927.3	4.8	-0.7	6.0	91.9	93.1	14.6	0.997	173.3W	
MAY 28	17 42 45.1	-24 -8-17.9		376.6	3493.9	1904.2	5.4	1.0	0.2	104.0	93.8	15.6	0.971	160.4W	
MAY 29	18 42 18.1	-25 -2-49.4		381.7	3446.9	1878.6	5.7	2.6	354.4	116.2	88.9	16.6	0.924	147.8W	
MAY 30	19 40 17.9	-24-30-20.7		387.0	3399.3	1852.6	5.7	3.9	349.0	128.4	83.4	17.6	0.858	135.6W	
MAY 31	20 35 34.9	-22-40-43.4		392.2	3354.6	1828.3	5.3	5.1	344.5	140.6	78.1	18.6	0.779	123.8W	
JUN 1	21 27 36.0	-19-47-55.1		396.8	3315.9	1807.2	4.6	5.9	340.9	152.8	73.6	19.6	0.691	112.3W	
JUN 2	22 16 25.2	-16 -6-33.5		400.5	3285.4	1790.6	3.6	6.5	338.5	165.0	69.9	20.6	0.597	101.1W	
JUN 3	23 2 33.6	-11-49-51.5		403.0	3264.5	1779.2	2.5	6.8	337.1	177.3	67.2	21.6	0.502	90.0W	
JUN 4	23 46 47.2	-7 -8-59.8		404.3	3253.8	1773.3	1.3	6.8	336.7	189.5	65.5	22.6	0.407	79.1W	
JUN															

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
JUL 1	23	32	4.4	-8-43 -5.5	403.1	3263.7	1778.7	1.6	6.8	336.7	159.5	68.4	20.0	0.662	108.8W
JUL 2	0	15	38.9	-3-50-19.2	404.1	3255.4	1774.2	0.3	6.6	336.9	171.7	67.2	21.0	0.570	97.9W
JUL 3	0	58	36.8	1 9 52.9	403.9	3257.3	1775.2	-0.9	6.1	338.0	183.9	67.0	22.0	0.475	87.0W
JUL 4	1	41	55.8	6 8 57.4	402.4	3269.5	1781.9	-2.2	5.4	339.9	196.1	67.9	23.0	0.381	76.0W
JUL 5	2	26	33.5	10 57 53.2	399.7	3291.4	1793.8	-3.3	4.4	342.6	208.4	69.8	24.0	0.289	65.0W
JUL 6	3	13	25.3	15 26 5.7	396.0	3321.9	1810.4	-4.3	3.2	346.0	220.6	72.9	25.0	0.205	53.7W
JUL 7	4	3	18.9	19 20 35.5	391.7	3359.1	1830.7	-5.0	1.8	350.3	232.8	77.3	26.0	0.130	42.1W
JUL 8	4	56	43.5	22 25 49.5	386.9	3400.5	1853.3	-5.4	0.3	355.3	245.1	83.4	27.0	0.069	30.3W
JUL 9	5	53	35.7	24 24 50.2	382.1	3443.1	1876.5	-5.5	-1.3	0.9	257.3	92.4	28.0	0.025	18.1W
JUL 10	6	53	8.3	25 2 15.4	377.7	3483.7	1898.6	-5.2	-2.8	6.6	269.6	116.3	29.0	0.003	6.0W
JUL 11	7	53	53.8	24 8 32.5	373.9	3519.2	1917.9	-4.6	-4.2	12.1	281.8	257.3	0.6	0.005	8.0E
JUL 12	8	54	10.7	21 43 30.4	370.9	3547.1	1933.2	-3.7	-5.3	16.9	294.1	275.0	1.6	0.033	20.8E
JUL 13	9	52	39.0	17 56 53.5	368.9	3565.9	1943.4	-2.6	-6.2	20.4	306.3	282.7	2.6	0.086	34.0E
JUL 14	10	48	43.0	13 5 47.3	368.0	3575.3	1948.5	-1.3	-6.6	22.6	318.6	287.6	3.6	0.162	47.4E
JUL 15	11	42	31.6	7 30 49.7	367.9	3575.8	1948.8	0.0	-6.7	23.3	330.8	290.6	4.6	0.257	60.8E
JUL 16	12	34	45.5	1 33 10.2	368.7	3568.8	1945.0	1.2	-6.3	22.7	343.1	291.9	5.6	0.364	74.1E
JUL 17	13	26	21.2	-4-26-58.0	370.0	3555.8	1937.9	2.3	-5.5	20.9	355.3	291.6	6.6	0.478	87.4E
JUL 18	14	18	18.5	-10-10-32.3	371.9	3538.1	1928.3	3.2	-4.4	18.0	7.5	289.8	7.6	0.592	100.5E
JUL 19	15	11	29.5	-15-19-24.3	374.1	3516.9	1916.7	3.9	-3.1	14.1	19.7	286.5	8.6	0.700	113.5E
JUL 20	16	6	27.9	-19-36-19.8	376.7	3492.8	1903.6	4.5	-1.5	9.4	31.9	281.8	9.6	0.796	126.3E
JUL 21	17	3	16.7	-22-45-49.6	379.6	3466.1	1889.0	4.8	0.0	4.1	44.1	275.6	10.6	0.877	138.9E
JUL 22	18	1	21.1	-24-36 -5.8	382.8	3437.3	1873.4	5.0	1.6	358.4	56.3	267.7	11.6	0.939	151.3E
JUL 23	18	59	32.6	-25 -1-26.0	386.2	3406.9	1856.8	4.9	3.0	352.8	68.5	256.5	12.6	0.979	163.3E
JUL 24	19	56	29.5	-24 -3-42.7	389.8	3375.6	1839.7	4.7	4.3	347.7	80.7	223.1	13.6	0.998	174.4E
JUL 25	20	51	3.5	-21-51-48.1	393.4	3344.6	1822.8	4.3	5.3	343.4	92.9	103.2	14.6	0.995	171.7W
JUL 26	21	42	38.3	-18-39 -3.8	396.8	3315.5	1806.9	3.7	6.1	340.1	105.1	84.1	15.6	0.972	160.6W
JUL 27	22	31	12.7	-14-40-20.0	399.9	3289.8	1792.9	2.8	6.5	338.0	117.3	76.8	16.6	0.931	149.4W
JUL 28	23	17	12.4	-10 -9-40.3	402.4	3269.4	1781.8	1.8	6.7	336.9	129.5	72.7	17.6	0.874	138.3W
JUL 29	0	1	19.4	-5-19-19.1	404.1	3255.8	1774.4	0.7	6.6	336.8	141.7	70.3	18.6	0.804	127.4W
JUL 30	0	44	24.1	0-19-40.0	404.7	3250.6	1771.6	-0.6	6.1	337.6	153.9	69.3	19.6	0.724	116.5W
JUL 31	1	27	20.9	4 40 9.9	404.2	3254.7	1773.8	-1.9	5.4	339.2	166.1	69.4	20.6	0.636	105.7W
AUG 1	2	11	5.9	9 31 25.8	402.5	3268.9	1781.6	-3.2	4.5	341.6	178.3	70.7	21.6	0.543	94.8W
AUG 2	2	56	35.1	14 4 42.1	399.5	3293.2	1794.8	-4.3	3.4	344.8	190.5	73.1	22.6	0.447	83.7W
AUG 3	3	44	41.0	18 8 52.5	395.4	3327.1	1813.3	-5.3	2.1	348.7	202.8	76.7	23.6	0.351	72.5W
AUG 4	4	36	5.0	21 30 27.4	390.5	3369.3	1836.2	-6.0	0.7	353.4	215.0	81.5	24.6	0.258	60.9W
AUG 5	5	31	5.7	23 53 42.4	385.0	3417.4	1862.5	-6.4	-0.8	358.7	227.2	87.7	25.6	0.173	49.0W
AUG 6	6	29	24.0	25 2 18.3	379.3	3468.3	1890.2	-6.3	-2.3	4.4	239.5	95.3	26.6	0.100	36.8W
AUG 7	7	29	56.6	24 42 51.0	374.0	3518.1	1917.4	-5.8	-3.7	10.0	251.7	105.1	27.6	0.044	24.1W
AUG 8	8	31	8.3	22 49 14.6	369.3	3562.3	1941.4	-4.9	-4.9	15.1	264.0	123.2	28.6	0.010	11.5W
AUG 9	9	31	23.5	19 25 39.3	365.8	3596.7	1960.2	-3.6	-5.9	19.2	276.2	229.4	0.2	0.002	5.2E
AUG 10	10	29	39.4	14 46 15.1	363.6	3618.1	1971.9	-2.0	-6.4	21.9	288.5	275.4	1.2	0.022	17.2E
AUG 11	11	25	39.0	9 12 4.1	362.9	3625.1	1975.7	-0.3	-6.6	23.2	300.7	284.7	2.2	0.070	30.7E
AUG 12	12	19	45.1	3 7 3.3	363.6	3618.0	1971.8	1.3	-6.3	22.9	313.0	288.5	3.2	0.143	44.4E
AUG 13	13	12	44.5	-3 -5 -0.1	365.6	3598.9	1961.4	2.9	-5.5	21.4	325.2	289.6	4.2	0.236	58.0E
AUG 14	14	5	32.8	-9 -2 -6.2	368.4	3570.9	1946.1	4.1	-4.5	18.7	337.4	288.7	5.2	0.341	71.4E
AUG 15	14	59	1.4	-14-24-34.6	371.9	3537.3	1927.8	5.0	-3.1	15.1	349.7	286.2	6.2	0.453	84.5E
AUG 16	15	53	47.1	-18-55 -7.9	375.8	3501.1	1908.1	5.7	-1.7	10.5	1.9	282.2	7.2	0.565	97.3E
AUG 17	16	50	0.7	-22-19-12.1	379.7	3464.6	1888.2	6.0	-0.1	5.3	14.1	276.9	8.2	0.671	109.9E
AUG 18	17	47	20.2	-24-25-55.7	383.7	3429.1	1868.9	6.0	1.4	359.8	26.3	270.6	9.2	0.767	122.2E
AUG 19	18	44	52.6	-25 -9-40.4	387.5	3395.5	1850.6	5.9	2.8	354.2	38.5	263.5	10.2	0.850	134.3E
AUG 20	19	41	28.2	-24-31 -9.4	391.1	3364.3	1833.6	5.5	4.1	349.0	50.7	255.6	11.2	0.915	146.0E
AUG 21	20	36	3.0	-22-37-18.3	394.4	3335.6	1817.9	5.0	5.1	344.5	62.9	246.0	12.2	0.962	157.5E
AUG 22	21	27	57.4	-19-39-35.5	397.5	3309.7	1803.8	4.3	5.9	341.0	75.0	229.2	13.2	0.990	168.5E
AUG 23	22	17	1.9	-15-51-42.3	400.3	3286.9	1791.3	3.4	6.4	338.6	87.2	150.7	14.2	0.998	175.1W
AUG 24	23	3	33.3	-11-27-29.2	402.6	3267.9	1781.0	2.5	6.6	337.2	99.4	89.7	15.2	0.987	167.1W
AUG 25	23	48	5.4	-6-39-43.4	404.4	3253.6	1773.2	1.4	6.5	336.8	111.6	78.0	16.2	0.959	156.5W
AUG 26	0	31	22.0	-1-39-44.2	405.4	3244.9	1768.5	0.1	6.1	337.3	123.8	73.6	17.2	0.914	145.8W
AUG 27	1	14	11.9	3 22 25.2	405.7	3243.2	1767.5	-1.2	5.5	338.7	136.0	71.9	18.2	0.854	135.0W
AUG 28	1	57	26.0	8 17 25.6	404.9	3249.4	1770.9	-2.5	4.6	340.8	148.2	72.0	19.2	0.782	124.2W
AUG 29	2	41	55.8	12 55 57.0	403.0	3264.5	1779.1	-3.8	3.5	343.7	160.4	73.5	20.2	0.700	113.4W
AUG 30	3	28	31.0	17 7 49.6	400.0	3289.0	1792.5	-5.1	2.3	347.3	172.6	76.2	21.2	0.609	102.4W
AUG 31	4	17	54.7	20 41 20.5	395.9	3323.2	1811.1	-6.1	0.9	351.7	184.8	80.1	22.2	0.512	91.2W
SEP 1	5	10	35.1	23 22 55.8	390.8	3366.3	1834.7	-6.9	-0.5	356.7	197.0	85.2	23.2	0.412	79.7W
SEP 2	6	6	33.4	24 57 49.1	385.0	3417.0	1862.3	-7.3	-2.0	2.1	209.2	91.3	24.2	0.313	67.9W
SEP 3	7	5	14.3	25 12 4.7	378.9	3472.6	1892.6	-7.2	-3.4	7.7	221.4	98.2	25.2	0.219	55.6W
SEP 4	8	5	27.9	23 55 59.9	372.8	3529.2									

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		h	m	s					l	b	c					
OCT	1	7	42	56.4	24 48 57.7	380.2	3460.5	1886.0	-7.6	-4.4	11.1	203.0	100.9	23.9	0.367	74.4W
OCT	2	8	41	41.9	22 37 50.8	374.0	3517.7	1917.1	-7.2	-5.4	15.9	215.2	107.3	24.9	0.265	61.8W
OCT	3	9	40	0.4	19 1 14.8	368.1	3573.9	1947.8	-6.2	-6.2	19.6	227.4	113.3	25.9	0.171	48.8W
OCT	4	10	37	14.1	14 9 26.1	363.1	3623.9	1975.0	-4.8	-6.6	22.1	239.7	119.1	26.9	0.092	35.3W
OCT	5	11	33	18.2	8 19 34.8	359.3	3661.9	1995.7	-2.9	-6.5	23.1	251.9	126.1	27.9	0.035	21.6W
OCT	6	12	28	36.8	1 54 16.9	357.2	3683.0	2007.2	-0.8	-6.0	22.7	264.1	147.4	28.9	0.005	8.2W
OCT	7	13	23	51.8	-4-40-19.0	357.1	3684.1	2007.8	1.3	-5.0	20.9	276.3	265.1	0.5	0.006	8.5E
OCT	8	14	19	49.3	-10-56-45.2	359.0	3665.1	1997.5	3.4	-3.7	17.8	288.5	282.0	1.5	0.036	22.0E
OCT	9	15	17	5.0	-16-28-45.0	362.5	3628.9	1977.7	5.1	-2.2	13.6	300.8	282.8	2.5	0.095	35.8E
OCT	10	16	15	49.2	-20-53-49.2	367.5	3580.3	1951.2	6.4	-0.5	8.5	313.0	279.7	3.5	0.174	49.3E
OCT	11	17	15	37.2	-23-55-43.9	373.2	3525.0	1921.1	7.3	1.1	2.9	325.2	274.9	4.5	0.269	62.4E
OCT	12	18	15	29.2	-25-26-24.7	379.3	3468.3	1890.2	7.7	2.7	357.0	337.4	269.0	5.5	0.372	75.0E
OCT	13	19	14	7.8	-25-26-29.8	385.3	3414.4	1860.9	7.7	4.0	351.5	349.6	262.9	6.5	0.477	87.2E
OCT	14	20	10	23.1	-24 -4 -0.5	390.8	3366.4	1834.7	7.4	5.1	346.6	1.8	257.0	7.5	0.580	99.0E
OCT	15	21	3	34.2	-21-31-33.4	395.6	3325.7	1812.5	6.7	5.9	342.6	13.9	251.6	8.5	0.677	110.5E
OCT	16	21	53	33.8	-18 -3-21.6	399.5	3293.1	1794.8	5.9	6.5	339.7	26.1	247.1	9.5	0.764	121.8E
OCT	17	22	40	42.2	-13-53-10.4	402.5	3268.6	1781.4	4.8	6.7	337.8	38.3	243.2	10.5	0.841	132.8E
OCT	18	23	25	36.3	-9-13-25.0	404.6	3251.7	1772.2	3.7	6.6	337.0	50.4	239.8	11.5	0.904	143.7E
OCT	19	0	9	1.5	-4-15 -9.6	405.9	3241.6	1766.7	2.4	6.3	337.0	62.6	236.3	12.5	0.952	154.5E
OCT	20	0	51	45.9	0 51 25.2	406.3	3237.7	1764.6	1.2	5.7	337.9	74.8	230.5	13.5	0.983	165.2E
OCT	21	1	34	37.7	5 56 28.8	406.1	3239.3	1765.4	-0.2	4.8	339.7	86.9	200.9	14.5	0.998	175.1E
OCT	22	2	18	23.5	10 49 56.8	405.3	3246.1	1769.1	-1.5	3.7	342.1	99.1	91.3	15.5	0.995	171.9W
OCT	23	3	3	46.7	15 21 4.8	403.8	3257.9	1775.5	-2.8	2.5	345.4	111.2	79.5	16.5	0.974	161.5W
OCT	24	3	51	23.4	19 18 13.5	401.7	3274.8	1784.8	-4.0	1.2	349.3	123.4	79.3	17.5	0.936	150.5W
OCT	25	4	41	37.2	22 28 53.9	399.0	3297.2	1797.0	-5.1	-0.3	353.9	135.5	82.0	18.5	0.880	139.4W
OCT	26	5	34	31.3	24 40 23.9	395.6	3325.5	1812.4	-6.0	-1.7	359.0	147.7	86.4	19.5	0.810	128.2W
OCT	27	6	29	42.8	25 41 5.9	391.6	3360.1	1831.2	-6.8	-3.1	4.3	159.9	91.7	20.5	0.725	116.7W
OCT	28	7	26	23.8	25 22 16.6	386.9	3400.8	1853.4	-7.2	-4.3	9.6	172.0	97.5	21.5	0.630	104.9W
OCT	29	8	23	32.7	23 39 54.7	381.7	3446.9	1878.5	-7.3	-5.4	14.5	184.2	103.3	22.5	0.526	92.8W
OCT	30	9	20	13.3	20 35 43.8	376.2	3496.8	1905.8	-6.9	-6.2	18.5	196.4	108.6	23.5	0.417	80.3W
OCT	31	10	15	52.5	16 17 11.5	370.8	3547.8	1933.5	-6.1	-6.6	21.3	208.6	113.2	24.5	0.310	67.5W
NOV	1	11	10	28.1	10 56 50.9	365.9	3595.8	1959.7	-4.9	-6.7	22.9	220.8	116.7	25.5	0.208	54.2W
NOV	2	12	4	25.5	4 51 42.7	361.8	3636.0	1981.6	-3.3	-6.3	23.0	233.0	119.3	26.5	0.121	40.6W
NOV	3	12	58	29.4	-1-37 -9.0	359.1	3663.3	1996.5	-1.5	-5.5	21.9	245.2	121.3	27.5	0.053	26.6W
NOV	4	13	53	32.6	-8 -5 -6.4	358.2	3673.4	2002.0	0.5	-4.3	19.4	257.4	125.7	28.5	0.012	12.6W
NOV	5	14	50	22.2	-14 -5 -9.9	359.0	3664.3	1997.1	2.5	-2.8	15.7	269.6	239.8	0.1	0.001	3.0E
NOV	6	15	49	23.3	-19-10-22.1	361.8	3636.7	1982.0	4.2	-1.1	10.9	281.8	279.4	1.1	0.019	16.0E
NOV	7	16	50	21.9	-22-57-25.7	366.1	3593.8	1958.6	5.7	0.6	5.3	294.0	277.7	2.1	0.066	29.6E
NOV	8	17	52	16.8	-25-10-52.2	371.6	3540.8	1929.7	6.7	2.3	359.3	306.2	272.7	3.1	0.134	42.9E
NOV	9	18	53	32.3	-25-46 -1.3	377.7	3483.3	1898.4	7.3	3.7	353.4	318.4	266.7	4.1	0.219	55.7E
NOV	10	19	52	30.6	-24-48-58.9	384.0	3426.4	1867.4	7.5	5.0	348.1	330.6	260.7	5.1	0.314	68.0E
NOV	11	20	48	5.6	-22-33-23.4	389.9	3374.1	1838.9	7.2	5.9	343.7	342.8	255.3	6.1	0.414	79.9E
NOV	12	21	39	56.5	-19-15-52.6	395.2	3329.3	1814.5	6.6	6.5	340.4	354.9	250.8	7.1	0.514	91.5E
NOV	13	22	28	20.5	-15-12-31.3	399.5	3293.6	1795.0	5.8	6.8	338.3	7.1	247.2	8.1	0.611	102.7E
NOV	14	23	13	58.8	-10-37-12.0	402.7	3267.4	1780.8	4.7	6.8	337.1	19.3	244.7	9.1	0.702	113.7E
NOV	15	23	57	42.8	-5-41-28.8	404.7	3250.8	1771.7	3.5	6.5	336.9	31.4	243.0	10.1	0.785	124.6E
NOV	16	0	40	27.6	0-35-17.6	405.7	3243.0	1767.4	2.2	5.9	337.6	43.6	242.2	11.1	0.857	135.4E
NOV	17	1	23	7.2	4 32 7.7	405.7	3243.1	1767.5	0.9	5.1	339.1	55.7	242.2	12.1	0.916	146.2E
NOV	18	2	6	33.8	9 31 20.0	404.8	3249.9	1771.2	-0.4	4.0	341.4	67.9	242.8	13.1	0.961	157.1E
NOV	19	2	51	35.2	14 11 55.6	403.3	3262.4	1778.0	-1.7	2.8	344.5	80.0	242.9	14.1	0.989	168.0E
NOV	20	3	38	51.9	18 22 7.6	401.2	3279.5	1787.3	-2.8	1.5	348.2	92.1	200.5	15.1	1.000	178.7E
NOV	21	4	28	50.6	21 48 49.2	398.7	3300.2	1798.6	-3.9	0.0	352.7	104.3	81.0	16.1	0.992	169.6W
NOV	22	5	21	35.8	24 18 19.7	395.8	3324.2	1811.7	-4.8	-1.4	357.7	116.4	83.3	17.1	0.964	158.2W
NOV	23	6	16	42.7	25 38 3.6	392.6	3351.2	1826.4	-5.5	-2.9	3.1	128.6	88.2	18.1	0.918	146.7W
NOV	24	7	13	17.5	25 38 46.1	389.1	3381.0	1842.6	-5.9	-4.2	8.4	140.7	93.9	19.1	0.854	134.9W
NOV	25	8	10	10.3	24 16 36.9	385.4	3413.7	1860.5	-6.1	-5.3	13.4	152.9	99.7	20.1	0.773	123.0W
NOV	26	9	6	17.1	21 34 0.1	381.4	3449.1	1879.8	-6.1	-6.1	17.6	165.0	105.0	21.1	0.679	110.8W
NOV	27	10	0	59.5	17 38 54.0	377.3	3486.6	1900.2	-5.7	-6.6	20.6	177.2	109.5	22.1	0.574	98.3W
NOV	28	10	54	13.2	12 43 18.8	373.3	3524.8	1921.0	-5.1	-6.8	22.5	189.3	112.9	23.1	0.463	85.6W
NOV	29	11	46	24.5	7 2 0.1	369.4	3561.6	1941.1	-4.1	-6.6	23.1	201.5	115.1	24.1	0.351	72.6W
NOV	30	12	38	21.3	0 52 0.4	366.1	3593.9	1958.7	-2.9	-5.9	22.4	213.7	115.9	25.1	0.245	59.2W
DEC	1	13	31	3.0	-5-27 -7.1	363.6	3618.1	1971.8	-1.4	-4.9	20.5	225.9	115.3	26.1	0.151	45.6W
DEC	2	14	25	30.0	-11-32-57.6	362.4	3630.5	1978.6	0.2	-3.5	17.4	238.1	113.1	27.1	0.076	31.9W
DEC	3	15	22	29.1	-17 0-39.3	3><										

Date	RA	[Mean]	Dec	Dist	H.P.	Diam	Libration			Sun	P.A.	Age	Phase	Solar
(0 DT)	(h m s)	(d ' ")	(d ' ")	(1000*Km)	(")	(")	l	b	c	Colng	Limb	(day)		Elong
JAN 1	16 58 59.1	-23-23-20.5		369.8	3558.0	1939.1	3.0	1.0	4.5	242.9	94.5	27.7	0.044	24.1W
JAN 2	18 0 42.6	-25-22-7.8		372.3	3534.1	1926.1	3.9	2.6	358.5	255.0	80.1	28.7	0.010	11.2W
JAN 3	19 2 39.2	-25-42-46.7		375.8	3501.3	1908.2	4.6	4.0	352.6	267.2	321.4	0.2	0.001	3.6E
JAN 4	20 2 51.5	-24-28-20.6		380.0	3461.8	1886.7	5.1	5.2	347.3	279.4	273.1	1.2	0.017	15.1E
JAN 5	20 59 49.1	-21-51-56.8		384.8	3418.7	1863.2	5.3	6.0	343.0	291.6	262.6	2.2	0.056	27.3E
JAN 6	21 52 53.3	-18-12-4.6		389.8	3375.5	1839.7	5.2	6.6	339.8	303.8	256.3	3.2	0.113	39.2E
JAN 7	22 42 13.0	-13-47-43.5		394.4	3335.4	1817.8	4.7	6.7	337.9	316.0	252.1	4.2	0.185	50.8E
JAN 8	23 28 28.9	-8-55-27.7		398.5	3301.4	1799.3	4.0	6.6	337.0	328.2	249.4	5.2	0.267	62.1E
JAN 9	0 12 36.1	-3-48-37.1		401.7	3275.6	1785.2	3.0	6.2	337.2	340.3	248.0	6.2	0.356	73.1E
JAN 10	0 55 35.1	1 22 10.9		403.6	3259.4	1776.4	1.8	5.5	338.2	352.5	247.7	7.2	0.449	84.0E
JAN 11	1 38 26.5	6 27 56.7		404.3	3253.8	1773.3	0.4	4.6	339.9	4.7	248.5	8.2	0.543	94.8E
JAN 12	2 22 9.4	11 20 3.7		403.7	3258.7	1776.0	-0.9	3.4	342.5	16.8	250.3	9.2	0.636	105.6E
JAN 13	3 7 39.3	15 49 8.1		401.9	3273.8	1784.2	-2.2	2.2	345.7	29.0	253.4	10.2	0.724	116.5E
JAN 14	3 55 44.2	19 44 3.9		398.9	3297.8	1797.3	-3.4	0.8	349.7	41.1	257.7	11.2	0.806	127.5E
JAN 15	4 46 56.3	22 51 40.4		395.2	3329.0	1814.3	-4.3	-0.6	354.4	53.2	263.4	12.2	0.877	138.8E
JAN 16	5 41 20.8	24 57 21.4		390.9	3365.3	1834.1	-5.0	-2.1	359.6	65.4	270.9	13.2	0.935	150.3E
JAN 17	6 38 25.3	25 47 10.5		386.5	3404.0	1855.2	-5.3	-3.4	5.1	77.5	282.0	14.2	0.976	162.0E
JAN 18	7 36 59.6	25 11 11.6		382.2	3442.3	1876.0	-5.3	-4.6	10.5	89.6	311.8	15.2	0.997	173.4E
JAN 19	8 35 34.4	23 6 46.0		378.4	3477.3	1895.1	-4.9	-5.6	15.3	101.7	72.6	16.2	0.995	171.9W
JAN 20	9 32 51.3	19 39 54.3		375.1	3507.1	1911.3	-4.3	-6.3	19.1	113.9	95.4	17.2	0.969	159.7W
JAN 21	10 28 7.0	15 4 0.6		372.7	3530.0	1923.9	-3.4	-6.6	21.7	126.0	103.7	18.2	0.920	147.0W
JAN 22	11 21 20.1	9 37 0.9		371.1	3545.7	1932.4	-2.4	-6.5	22.9	138.1	108.3	19.2	0.848	134.0W
JAN 23	12 13 3.0	3 38 38.0		370.2	3554.3	1937.1	-1.3	-6.0	22.8	150.3	110.7	20.2	0.758	120.9W
JAN 24	13 4 8.8	-2-31-18.2		369.9	3556.8	1938.4	-0.3	-5.1	21.6	162.4	111.3	21.2	0.654	107.8W
JAN 25	13 55 39.5	-8-33-19.6		370.2	3554.0	1936.9	0.7	-4.0	19.2	174.6	110.2	22.2	0.542	94.7W
JAN 26	14 48 35.2	-14 -8 -8.1		370.9	3546.7	1933.0	1.6	-2.5	15.7	186.7	107.5	23.2	0.428	81.6W
JAN 27	15 43 42.5	-18-56-22.9		372.1	3535.4	1926.8	2.4	-1.0	11.4	198.9	103.2	24.2	0.319	68.6W
JAN 28	16 41 19.9	-22-39-16.3		373.7	3520.2	1918.5	3.1	0.6	6.2	211.1	97.4	25.2	0.219	55.7W
JAN 29	17 41 2.9	-25 0-34.6		375.8	3500.7	1907.9	3.7	2.2	0.5	223.3	90.1	26.2	0.135	43.0W
JAN 30	18 41 40.3	-25-49-54.8		378.4	3476.9	1894.9	4.1	3.6	354.6	235.4	81.2	27.2	0.069	30.4W
JAN 31	19 41 32.4	-25 -5-46.2		381.5	3449.0	1879.7	4.5	4.8	349.1	247.6	68.9	28.2	0.025	18.1W
FEB 1	20 39 4.9	-22-56-7.4		384.9	3417.8	1862.7	4.6	5.7	344.5	259.8	36.8	29.2	0.004	7.0W
FEB 2	21 33 19.6	-19-35-58.0		388.7	3384.4	1844.5	4.6	6.3	340.9	272.0	287.3	0.5	0.005	8.2E
FEB 3	22 24 2.9	-15-23-17.0		392.6	3350.7	1826.1	4.3	6.6	338.5	284.2	263.3	1.5	0.028	19.1E
FEB 4	23 11 37.1	-10-35-37.2		396.4	3318.9	1808.8	3.7	6.5	337.3	296.4	255.6	2.5	0.069	30.4E
FEB 5	23 56 45.8	-5-28-14.7		399.7	3291.3	1793.7	2.9	6.2	337.1	308.6	251.8	3.5	0.126	41.5E
FEB 6	0 40 22.2	0-13-46.1		402.4	3269.8	1782.0	1.9	5.5	337.8	320.8	250.1	4.5	0.197	52.5E
FEB 7	1 23 22.9	4 57 21.7		404.0	3256.3	1774.7	0.6	4.6	339.3	332.9	249.9	5.5	0.277	63.4E
FEB 8	2 6 44.2	9 55 56.7		404.5	3252.1	1772.4	-0.7	3.6	341.5	345.1	251.0	6.5	0.365	74.2E
FEB 9	2 51 20.8	14 32 58.4		403.8	3258.2	1775.7	-2.1	2.4	344.5	357.3	253.2	7.5	0.457	84.9E
FEB 10	3 38 3.2	18 38 37.6		401.7	3274.8	1784.8	-3.5	1.0	348.2	9.5	256.6	8.5	0.552	95.8E
FEB 11	4 27 31.6	22 1 32.8		398.5	3301.6	1799.4	-4.6	-0.4	352.6	21.6	261.1	9.5	0.646	106.8E
FEB 12	5 20 7.5	24 28 42.6		394.2	3337.5	1818.9	-5.6	-1.8	357.5	33.8	266.8	10.5	0.736	118.1E
FEB 13	6 15 42.3	25 46 24.3		389.2	3380.6	1842.4	-6.2	-3.1	2.9	45.9	273.5	11.5	0.820	129.6E
FEB 14	7 13 31.0	25 42 35.0		383.8	3428.1	1868.3	-6.4	-4.3	8.4	58.1	281.4	12.5	0.892	141.5E
FEB 15	8 12 18.7	24 10 7.0		378.4	3476.6	1894.8	-6.1	-5.3	13.5	70.2	290.9	13.5	0.949	153.8E
FEB 16	9 10 43.5	21 9 36.5		373.6	3522.0	1919.5	-5.5	-6.1	17.7	82.3	306.4	14.5	0.985	166.1E
FEB 17	10 7 44.2	16 50 13.4		369.5	3560.2	1940.3	-4.4	-6.5	20.8	94.5	21.5	15.5	0.998	175.0W
FEB 18	11 2 56.7	11 28 17.5		366.7	3588.0	1955.4	-3.1	-6.5	22.6	106.6	93.0	16.5	0.984	165.6W
FEB 19	11 56 34.5	5 24 42.3		365.1	3603.1	1963.7	-1.6	-6.0	22.9	118.7	104.6	17.5	0.944	152.5W
FEB 20	12 49 17.5	0 57-38.9		364.9	3605.4	1965.0	-0.1	5.2	22.0	130.9	108.3	18.5	0.878	139.1W
FEB 21	13 41 59.8	-7-15-44.0		365.9	3596.0	1959.8	1.3	-4.0	19.9	143.0	108.9	19.5	0.792	125.6W
FEB 22	14 35 36.6	-13 -7-24.8		367.8	3577.3	1949.6	2.5	-2.6	16.6	155.2	107.2	20.5	0.690	112.2W
FEB 23	15 30 52.7	-18 12 -1.8		370.4	3552.0	1935.8	3.5	-1.0	12.4	167.3	103.8	21.5	0.580	99.1W
FEB 24	16 28 8.5	-22-11 -5.0		373.5	3522.8	1919.9	4.2	0.6	7.4	179.5	98.9	22.5	0.468	86.1W
FEB 25	17 27 8.0	-24-49-35.1		376.8	3491.9	1903.1	4.7	2.1	1.8	191.7	92.8	23.5	0.358	73.4W
FEB 26	18 26 54.8	-25 58 -9.3		380.2	3460.5	1886.0	5.0	3.5	356.0	203.8	85.8	24.5	0.258	60.9W
FEB 27	19 26 5.7	-25 34 59.9		383.6	3429.6	1869.1	5.2	4.7	350.5	216.0	78.4	25.5	0.171	48.7W
FEB 28	20 23 17.3	-23-46-21.5		387.0	3399.5	1852.7	5.1	5.6	345.7	228.2	70.7	26.5	0.100	36.7W
MAR 1	21 17 33.3	-20 44 47.8		390.4	3370.3	1836.8	4.9	6.2	341.9	240.4	62.1	27.5	0.047	25.0W
MAR 2	22 8 34.8	-16-46-13.8		393.6	3342.3	1821.5	4.5	6.5	339.2	252.6	48.4	28.5	0.014	13.7W
MAR 3	22 56 35.9	-12 -7 -7.6		396.8	3316.0	1807.2	3.9	6.5	337.6	264.8	351.5	29.5	0.002	5.1E
MAR 4	23 42 12.2	-7 -2-46.0		399.6	3292.2	1794.2	3.2	6.2	337.1	277.0	271.2	0.9	0.009	11.2E
MAR 5	0 26 10.0	-1-46-34.6		402.1	3271.9	1783.2	2.2	5.6	337.5	289.2	257.4	1.9	0.036	21.7E
MAR 6	1 9 20.0	3 29 48.2		404.0	3256.5	1774.8	1.0	4.7	338.7	301.4	253.3	2.9	0.079	32.5E
MAR 7	1 52 33.2	8 36 2.4		405.1	3247.4	1769.8	-0.3	3.7	340.7	313.6	252.4	3.9	0.137	43.3E
MAR 8	2 36 39.8	13 22 26.3		405.3	3245.8	1769.0	-1.7	2.5	343.5	325.8	253.4	4.		

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colong	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(d ' ")				l	b	c					
APR 1	0 14 9.8	-3-13-11.9		402.8	3266.5	1780.3	3.1	5.7	337.3	258.1	40.6	28.9	0.007	9.9W
APR 2	0 57 12.6	2 5 24.0		404.5	3252.4	1772.6	1.9	4.9	338.3	270.3	307.3	0.2	0.001	4.3E
APR 3	1 40 13.2	7 17 28.6		405.7	3243.0	1767.4	0.7	3.8	340.1	282.5	261.2	1.2	0.014	13.4E
APR 4	2 23 58.7	12 12 44.1		406.2	3238.9	1765.2	-0.7	2.6	342.6	294.7	255.7	2.2	0.043	24.0E
APR 5	3 9 12.2	16 40 49.3		405.9	3241.0	1766.3	-2.1	1.3	345.9	306.9	255.7	3.2	0.089	34.7E
APR 6	3 56 29.3	20 30 58.8		404.8	3250.0	1771.3	-3.6	-0.1	349.8	319.1	258.1	4.2	0.150	45.5E
APR 7	4 46 12.7	23 31 59.4		402.7	3266.9	1780.5	-4.9	-1.4	354.3	331.4	262.0	5.2	0.224	56.4E
APR 8	5 38 25.8	25 32 32.8		399.6	3292.4	1794.4	-6.1	-2.8	359.3	343.6	266.9	6.2	0.309	67.4E
APR 9	6 32 47.6	26 22 15.6		395.5	3326.9	1813.2	-7.1	-4.0	4.5	355.8	272.6	7.2	0.403	78.6E
APR 10	7 28 34.0	25 53 12.0		390.4	3370.1	1836.7	-7.7	-5.1	9.7	8.0	278.7	8.2	0.503	90.2E
APR 11	8 24 48.7	24 1 30.4		384.6	3420.8	1864.3	-8.0	-5.9	14.4	20.1	284.6	9.2	0.605	102.0E
APR 12	9 20 40.3	20 48 30.2		378.4	3476.9	1894.9	-7.8	-6.5	18.3	32.3	290.1	10.2	0.707	114.3E
APR 13	10 15 39.0	16 20 59.0		372.2	3534.9	1926.5	-7.1	-6.7	21.1	44.5	295.0	11.2	0.802	127.1E
APR 14	11 9 43.6	10 50 59.0		366.5	3590.0	1956.5	-6.0	-6.5	22.6	56.7	299.0	12.2	0.885	140.3E
APR 15	12 3 20.2	4 35 26.3		361.8	3636.6	1981.9	-4.4	-5.9	22.8	68.8	302.9	13.2	0.949	153.9E
APR 16	12 57 14.2	-2 -4 -6.8		358.6	3669.1	1999.6	-2.5	-4.9	21.7	81.0	310.3	14.2	0.989	167.8E
APR 17	13 52 19.8	-8-42 -6.8		357.2	3683.3	2007.4	-0.5	-3.5	19.3	93.2	65.1	15.2	0.999	176.3E
APR 18	14 49 26.6	-14-50-22.8		357.8	3677.4	2004.1	1.5	-1.8	15.6	105.3	102.5	16.2	0.979	163.1W
APR 19	15 49 1.9	-20 0 41.9		360.2	3652.5	1990.6	3.3	-0.1	10.9	117.5	102.4	17.2	0.929	149.1W
APR 20	16 50 51.4	-23-48-37.1		364.2	3612.4	1968.8	4.9	1.7	5.3	129.7	98.1	18.2	0.856	135.3W
APR 21	17 53 49.2	-25-57-51.0		369.3	3562.4	1941.5	6.1	3.3	359.3	141.9	92.2	19.2	0.765	121.8W
APR 22	18 56 10.8	-26-23-33.0		375.1	3507.7	1911.7	6.9	4.6	353.3	154.0	85.7	20.2	0.663	108.8W
APR 23	19 56 9.2	-25-12-26.9		381.0	3453.3	1882.1	7.2	5.6	348.0	166.2	79.3	21.2	0.556	96.3W
APR 24	20 52 32.9	-22-39-26.0		386.7	3402.6	1854.4	7.2	6.4	343.6	178.4	73.7	22.2	0.450	84.1W
APR 25	21 45 0.3	-19 -2-39.5		391.8	3357.9	1830.1	6.9	6.7	340.4	190.6	68.9	23.2	0.350	72.3W
APR 26	22 33 50.7	-14-39-44.7		396.2	3320.3	1809.6	6.3	6.8	338.3	202.8	65.3	24.2	0.257	60.9W
APR 27	23 19 47.6	-9-46 -1.7		399.9	3290.1	1793.1	5.4	6.5	337.3	215.1	62.6	25.2	0.177	49.6W
APR 28	0 3 44.7	-4-34-25.5		402.7	3267.2	1780.6	4.4	5.9	337.2	227.3	60.7	26.2	0.109	38.5W
APR 29	0 46 37.6	0 43 56.1		404.7	3251.0	1771.8	3.2	5.1	338.0	239.5	59.4	27.2	0.057	27.5W
APR 30	1 29 20.0	5 58 51.7		405.9	3240.9	1766.3	1.9	4.1	339.6	251.8	57.8	28.2	0.021	16.7W
MAY 1	2 12 42.0	11 0 20.2		406.5	3236.5	1763.9	0.5	2.9	341.9	264.0	48.8	29.2	0.003	6.0W
MAY 2	2 57 28.4	15 37 57.1		406.4	3237.5	1764.4	-0.9	1.6	345.0	276.2	266.0	0.5	0.002	5.4E
MAY 3	3 44 15.7	19 40 36.7		405.6	3243.8	1767.9	-2.3	0.2	348.7	288.5	257.5	1.5	0.020	16.1E
MAY 4	4 33 26.3	22 56 37.3		404.1	3255.6	1774.3	-3.6	-1.2	353.1	300.7	259.6	2.5	0.055	27.0E
MAY 5	5 25 2.6	25 14 18.8		401.9	3273.4	1784.0	-4.9	-2.6	358.0	312.9	263.9	3.5	0.107	38.0E
MAY 6	6 18 42.0	26 23 14.6		399.0	3297.7	1797.2	-6.0	-3.9	3.2	325.2	269.3	4.5	0.174	49.2E
MAY 7	7 13 38.5	26 15 47.2		395.2	3328.9	1814.3	-6.9	-5.0	8.3	337.4	275.0	5.5	0.255	60.5E
MAY 8	8 8 54.2	24 48 33.1		390.7	3367.2	1835.1	-7.5	-5.9	13.1	349.6	280.8	6.5	0.347	72.1E
MAY 9	9 3 37.1	22 3 0.3		385.6	3412.2	1859.6	-7.8	-6.5	17.2	1.8	286.1	7.5	0.449	84.0E
MAY 10	9 57 17.2	18 5 9.1		380.0	3462.6	1887.1	-7.7	-6.8	20.3	14.0	290.7	8.5	0.555	96.2E
MAY 11	10 49 53.4	13 4 46.9		374.2	3516.2	1916.3	-7.1	-6.7	22.2	26.2	294.2	9.5	0.663	108.9E
MAY 12	11 41 52.3	7 14 58.0		368.6	3569.2	1945.2	-6.2	-6.3	22.9	38.4	296.5	10.5	0.766	122.0E
MAY 13	12 34 1.6	0 52 10.9		363.7	3617.2	1971.3	-4.8	-5.4	22.3	50.6	297.5	11.5	0.857	135.5E
MAY 14	13 27 21.3	-5-43 -6.8		360.0	3654.6	1991.7	-3.1	-4.1	20.5	62.8	297.1	12.5	0.931	149.4E
MAY 15	14 22 53.4	-12 -6 -6.6		357.9	3676.5	2003.7	-1.2	-2.6	17.4	75.0	295.6	13.5	0.980	163.5E
MAY 16	15 21 26.0	-17-48-25.6		357.6	3679.5	2005.3	0.7	-0.8	13.2	87.1	301.2	14.5	1.000	177.8E
MAY 17	16 23 10.8	-22-20-57.4		359.2	3662.7	1996.2	2.6	1.0	7.9	99.3	103.0	15.5	0.989	168.0W
MAY 18	17 27 20.8	-25-19 -8.0		362.6	3628.4	1977.5	4.3	2.7	1.8	111.5	97.5	16.5	0.949	154.0W
MAY 19	18 32 7.4	-26-29-10.3		367.4	3580.7	1951.5	5.7	4.2	355.6	123.7	90.7	17.5	0.885	140.3W
MAY 20	19 35 13.4	-25-51-48.9		373.2	3525.2	1921.2	6.7	5.4	349.8	135.9	83.9	18.5	0.802	127.1W
MAY 21	20 34 47.3	-23-40-38.1		379.4	3467.5	1889.8	7.3	6.2	344.9	148.1	77.7	19.5	0.707	114.4W
MAY 22	21 29 56.9	-20-16 -1.4		385.6	3412.0	1859.5	7.4	6.7	341.2	160.3	72.6	20.5	0.606	102.1W
MAY 23	22 20 48.5	-15-59 -1.6		391.3	3362.2	1832.4	7.1	6.8	338.8	172.5	68.8	21.5	0.504	90.3W
MAY 24	23 8 5.4	-11 -7-51.0		396.3	3320.2	1809.5	6.5	6.6	337.5	184.7	66.1	22.5	0.404	78.7W
MAY 25	23 52 46.9	-5-57 -3.2		400.2	3287.1	1791.5	5.6	6.1	337.2	196.9	64.5	23.5	0.310	67.5W
MAY 26	0 35 55.8	0-38-15.7		403.2	3263.0	1778.3	4.4	5.4	337.8	209.2	64.0	24.5	0.225	56.5W
MAY 27	1 18 33.1	4 38 39.0		405.1	3247.6	1769.9	3.2	4.4	339.2	221.4	64.6	25.5	0.150	45.5W
MAY 28	2 1 35.4	9 44 21.8		406.0	3240.2	1765.9	1.8	3.2	341.3	233.6	66.3	26.5	0.089	34.7W
MAY 29	2 45 53.5	14 29 10.3		406.1	3239.8	1765.7	0.4	1.9	344.2	245.9	69.3	27.5	0.043	23.8W
MAY 30	3 32 10.0	18 42 23.0		405.4	3245.6	1768.9	-1.0	0.5	347.7	258.1	74.5	28.5	0.013	12.9W
MAY 31	4 20 53.4	22 12 12.1		404.0	3256.8	1775.0	-2.4	-0.9	351.9	270.4	99.9	29.5	0.000	2.1W
JUN 1	5 12 11.2	24 46 18.1		402.0	3272.8	1783.7	-3.6	-2.3	356.7	282.6	254.2	0.8	0.006	9.2E
JUN 2	6 5 43.0	26 13 12.5		399.5	3293.1	1794.8	-4.7	-3.6	1.9	294.9	263.0	1.8	0.031	20.4E
JUN 3	7 0 40.5	26 24 17.2		396.5	3317.8	1808.2	-5.6	-4.7	7.1	307.1	270.0	2.8	0.075	31.7E
JUN 4	7 55 58.5	25 15 36.6		393.1	3346.7	1823.9	-6.2	-5.7	12.0	319.3	276.5	3.8	0.137	43.3E
JUN 5	8 50 35.0	22 48 48.8		389.2	3380.0	1842.1	-6.6	-6.4	16.2	331.6	282.2	4.8	0.214	55.0E
JUN 6	9 43 50.6	19 10 31.9		385.0	3417.5	1862.5	-6.8	-6.7	19.5	343.8	287.1	5.8	0.306	67.0E
JUN 7	10 35 37.4	14 30 59.3		380.4	3458.6	1884.9	-6.6	-6.8	21.7	356.0	290.9	6.8	0.408	79.3E
JUN 8	11 26 18.2	9 2 42.8		375.7	3502.1	1908.7	-6.2	-6.4	22.8	8.3	293.4	7.8	0.518	91.9E
JUN 9	12 16 39.3	3 0 3.2		371.0	3545.8	1932.5	-5.4	-5.7	22.6	20.5	294.6	8.8	0.629	104.8E
JUN 10	13 7 42.1	-3-20-24.4		366.8	3586.4	1954.6	-4.3	-4.6	21.3	32.7	294.3	9.8	0.736	118.1E
JUN 11	14 0 34.9	-9-38-54.4		363.4	3620.1	1972.9	-3.0	-3.2	18.8	44.9	292.3	10.8	0.833	131.7E
JUN 12	14 56 22.0	-15-31-47.0		361.2	3642.6	1985.2	-1.4	-1.5	15.1	57.1	288.4	11.8	0.913	145.5E
JUN 13	15 55 44.7	-20-31-59.9		360.4	3650.3	1989.4	0.3	0.2	10.3	69.3	281.4	12.8	0.968	159.5E
JUN 14	16 58 36.1	-24-12-11.9		361.3	3641.3	1984.5	2.0	2.0	4.6	81.5	263.1	13.8	0.997	173.3E
JUN 15	18 3 39.8	-26-10-41.4		363.9	3615.8	1970.6	3.6	3.6	358.4	93.6	110.1	14.8	0.995	172.2W
JUN 16	19 8 40.3	-26-18-13.3		367.9	3576.3	1949.1	5.0	4.9	352.2	105.8	93.0	15.8	0.966	158.8W
JUN 17	20 11 11.5	-24-41 -0.8		373.0	3527.1	1922.3	6.0	5.9	346.8	118.0	84.2	16.8	0.913	1

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JUL 1	7 42 15.1			25 36 28.1	392.5	3352.1	1826.9	-5.1	-5.4	10.8	289.3	263.8	1.2	0.017	14.8E
JUL 2	8 37 39.4			23 25 33.6	389.1	3381.3	1842.8	-5.4	-6.2	15.3	301.5	275.1	2.2	0.053	26.4E
JUL 3	9 31 39.1			20 0 25.5	385.6	3411.6	1859.3	-5.6	-6.6	18.8	313.8	282.1	3.2	0.109	38.4E
JUL 4	10 23 51.9			15 32 8.7	382.2	3442.6	1876.2	-5.4	-6.7	21.3	326.0	287.2	4.2	0.184	50.6E
JUL 5	11 14 30.0			10 14 30.1	378.7	3473.9	1893.3	-5.1	-6.4	22.6	338.2	290.5	5.2	0.274	63.1E
JUL 6	12 4 12.7			4 22 35.9	375.4	3504.9	1910.2	-4.6	-5.7	22.7	350.5	292.4	6.2	0.378	75.7E
JUL 7	12 53 57.3			-1-47-30.4	372.2	3534.7	1926.4	-3.9	-4.7	21.7	2.7	292.7	7.2	0.489	88.6E
JUL 8	13 44 51.2			-7-58-18.9	369.4	3561.7	1941.1	-3.0	-3.4	19.6	14.9	291.5	8.2	0.603	101.7E
JUL 9	14 38 2.4			-13-50-0.9	367.1	3583.8	1953.1	-1.9	-1.9	16.4	27.1	288.6	9.2	0.713	115.0E
JUL 10	15 34 27.0			-18-59-58.1	365.6	3598.4	1961.1	-0.7	-0.3	12.1	39.3	283.8	10.2	0.812	128.5E
JUL 11	16 34 28.6			-23-3-38.2	365.1	3603.1	1963.7	0.6	1.4	6.9	51.5	277.0	11.2	0.895	142.1E
JUL 12	17 37 34.0			-25-38-3.5	365.9	3596.0	1959.8	2.0	3.0	0.9	63.7	267.2	12.2	0.955	155.6E
JUL 13	18 42 3.4			-26-27-44.5	367.9	3576.5	1949.2	3.3	4.4	354.7	75.9	248.7	13.2	0.990	168.7E
JUL 14	19 45 36.1			-25-30-9.6	371.1	3545.6	1932.4	4.4	5.5	349.0	88.1	138.5	14.2	0.998	175.1W
JUL 15	20 46 5.0			-22-56-40.0	375.3	3505.6	1910.6	5.3	6.3	344.2	100.3	91.2	15.2	0.980	163.7W
JUL 16	21 42 20.7			-19-7-51.1	380.2	3460.0	1885.7	5.9	6.6	340.6	112.5	80.0	16.2	0.938	151.2W
JUL 17	22 34 17.3			-14-26-53.5	385.5	3412.6	1859.9	6.0	6.6	338.4	124.7	74.0	17.2	0.878	139.0W
JUL 18	23 22 32.6			-9-14-45.6	390.7	3367.2	1835.1	5.8	6.2	337.4	136.9	70.4	18.2	0.802	127.1W
JUL 19	0 8 5.5			-3-48-23.0	395.5	3326.9	1813.2	5.3	5.6	337.4	149.1	68.6	19.2	0.716	115.5W
JUL 20	0 52 0.8			1 39 8.0	399.4	3294.2	1795.4	4.4	4.7	338.3	161.3	68.1	20.2	0.624	104.3W
JUL 21	1 35 22.6			6 57 21.6	402.2	3270.7	1782.5	3.2	3.6	340.0	173.5	68.8	21.2	0.529	93.2W
JUL 22	2 19 11.3			11 57 10.0	403.9	3257.3	1775.2	1.9	2.4	342.4	185.7	70.7	22.2	0.434	82.3W
JUL 23	3 4 21.3			16 29 28.3	404.3	3254.1	1773.5	0.5	1.0	345.5	198.0	73.7	23.2	0.342	71.4W
JUL 24	3 51 38.4			20 24 18.1	403.5	3260.7	1777.1	-0.9	-0.3	349.4	210.2	77.9	24.2	0.255	60.6W
JUL 25	4 41 32.6			23 30 22.9	401.6	3276.1	1785.5	-2.2	-1.7	353.8	222.4	83.4	25.2	0.177	49.6W
JUL 26	5 34 9.7			25 35 35.0	398.8	3299.1	1798.0	-3.3	-3.0	358.8	234.7	90.3	26.2	0.109	38.5W
JUL 27	6 29 3.3			26 28 27.8	395.4	3327.8	1813.6	-4.1	-4.2	4.1	246.9	99.1	27.2	0.056	27.2W
JUL 28	7 25 15.9			26 0 43.4	391.5	3360.1	1831.3	-4.7	-5.2	9.3	259.2	112.4	28.2	0.019	15.9W
JUL 29	8 21 32.8			24 9 40.3	387.6	3394.0	1849.7	-5.0	-6.0	14.0	271.4	156.0	29.2	0.003	5.7W
JUL 30	9 16 47.0			20 59 25.3	383.9	3427.4	1868.0	-4.9	-6.4	17.9	283.7	258.4	0.7	0.008	10.0E
JUL 31	10 10 18.8			16 40 14.1	380.4	3458.7	1885.0	-4.7	-6.6	20.7	295.9	278.0	1.7	0.036	21.8E
AUG 1	11 2 4.2			11 26 38.0	377.4	3486.5	1900.1	-4.2	-6.3	22.3	308.2	285.6	2.7	0.087	34.2E
AUG 2	11 52 30.6			5 35 25.1	374.8	3510.1	1913.0	-3.5	-5.7	22.7	320.4	289.4	3.7	0.159	46.9E
AUG 3	12 42 26.9			0-35-36.7	372.8	3529.4	1923.5	-2.7	-4.8	22.0	332.7	290.9	4.7	0.249	59.8E
AUG 4	13 32 54.7			-6-48-2.6	371.2	3544.2	1931.6	-1.9	-3.5	20.2	344.9	290.6	5.7	0.353	72.8E
AUG 5	14 24 58.6			-12-42-36.3	370.1	3554.6	1937.3	-1.0	-2.0	17.3	357.1	288.6	6.7	0.465	85.9E
AUG 6	15 19 36.4			-17-58-46.5	369.5	3560.3	1940.4	-0.1	-0.4	13.3	3.3	284.9	7.7	0.580	99.1E
AUG 7	16 17 22.9			-22-15-1.7	369.5	3560.8	1940.6	0.8	1.2	8.4	21.5	279.6	8.7	0.691	112.3E
AUG 8	17 18 9.7			-25-10-39.9	370.1	3555.2	1937.6	1.8	2.7	2.8	33.7	272.7	9.7	0.791	125.4E
AUG 9	18 20 51.4			-26-29-40.2	371.3	3542.9	1930.9	2.7	4.1	356.8	45.9	264.4	10.7	0.875	138.6E
AUG 10	19 23 35.0			-26-5-24.6	373.4	3523.4	1920.3	3.6	5.2	350.9	58.1	254.4	11.7	0.940	151.5E
AUG 11	20 24 18.7			-24-3-12.4	376.2	3496.9	1905.8	4.4	6.0	345.8	70.3	240.0	12.7	0.981	164.0E
AUG 12	21 21 36.3			-20-38-35.4	379.8	3464.4	1888.1	5.0	6.5	341.9	82.5	189.3	13.7	0.998	174.4E
AUG 13	22 14 57.3			-16-12-25.8	383.8	3427.7	1868.1	5.3	6.5	339.2	94.7	95.4	14.7	0.991	168.9W
AUG 14	23 4 38.6			-11-6-2.3	388.2	3389.1	1847.1	5.3	6.2	337.7	106.9	78.8	15.7	0.962	157.4W
AUG 15	23 51 25.6			-5-38-14.7	392.6	3351.4	1826.5	5.0	5.6	337.3	119.0	72.9	16.7	0.914	145.7W
AUG 16	0 36 15.7			0-4-29.5	396.6	3317.3	1807.9	4.3	4.8	337.9	131.2	70.4	17.7	0.850	134.3W
AUG 17	1 20 9.0			5 22 47.1	400.0	3289.1	1792.5	3.3	3.7	339.3	143.4	69.9	18.7	0.774	123.1W
AUG 18	2 4 3.8			10 33 11.8	402.5	3268.7	1781.4	2.2	2.5	341.5	155.6	70.8	19.7	0.689	112.1W
AUG 19	2 48 54.2			15 17 17.6	403.9	3257.6	1775.4	0.8	1.2	344.4	167.8	73.0	20.7	0.599	101.2W
AUG 20	3 35 27.5			19 25 33.8	404.0	3256.5	1774.8	-0.6	-0.2	348.0	180.1	76.4	21.7	0.505	90.4W
AUG 21	4 24 19.6			22 47 44.7	402.8	3265.9	1779.9	-2.0	-1.5	352.2	192.3	80.9	22.7	0.410	79.5W
AUG 22	5 15 47.3			25 12 44.7	400.5	3285.1	1790.4	-3.2	-2.8	357.0	204.5	86.5	23.7	0.318	68.5W
AUG 23	6 9 40.7			26 29 24.5	397.1	3313.4	1805.8	-4.2	-4.0	2.2	216.7	92.9	24.7	0.231	57.4W
AUG 24	7 5 19.4			26 28 18.0	392.9	3348.9	1825.2	-5.0	-5.0	7.4	229.0	100.2	25.7	0.153	45.9W
AUG 25	8 1 40.3			25 4 0.8	388.2	3389.4	1847.2	-5.4	-5.8	12.4	241.2	108.2	26.7	0.087	34.3W
AUG 26	8 57 36.4			22 17 3.9	383.4	3432.0	1870.4	-5.4	-6.4	16.6	253.4	118.2	27.7	0.038	22.4W
AUG 27	9 52 17.9			18 14 28.3	378.8	3473.4	1893.0	-5.0	-6.6	19.8	265.7	137.9	28.7	0.009	10.6W
AUG 28	10 45 26.1			13 8 55.4	374.8	3510.4	1913.2	-4.3	-6.4	21.9	277.9	238.2	0.3	0.003	6.0E
AUG 29	11 37 14.5			7 17 12.4	371.6	3540.5	1929.5	-3.4	-5.8	22.7	290.2	278.9	1.3	0.022	17.2E
AUG 30	12 28 21.2			0 58 40.4	369.4	3561.6	1941.1	-2.4	-4.9	22.3	302.4	286.9	2.3	0.068	30.1E
AUG 31	13 19 39.9			-5-25-52.8	368.2	3573.2	1947.4	-1.2	-3.6	20.7	314.6	289.1	3.3	0.137	43.3E
SEP 1	14 12 9.9			-11-34-52.3	367.9	3575.7	1948.7	-0.1	-2.1	18.1	326.9	288.4	4.3	0.226	56.6E
SEP 2	15 6 45.1			-17-6-22.9	368.5	3570.2	1945.8	1.0	-0.5	14.3	339.1	285.7	5.3	0.329	69.9E
SEP 3	16 3 59.9			-21-38-49.7	369.7	3558.4	1939.3	1.9	1.1	9.6	351.3	281.2	6.3	0.441	83.1E
SEP 4	17 3 52.1			-24-52-32.1	371.5	3541.7	1930.2	2.8	2.7	4.1	3.5	275.3	7.3	0.555	96.2E
SEP 5	18 5 30.0			-26-32-34.2	373.6	3521.4	1919.2	3.5	4.0	358.2	15.7	268.4	8.3	0.665	109.2E
SEP 6	19 7 19.0			-26-32-10.6	376.1	3498.2	1906.5	4.2	5.2	352.4	27.9	260.9	9.3	0.766	122.0E
SEP 7	20 7 31.0			-24-54-47.5	378.9	3472.6	1892.6	4.7	6.0	347.2	40.1	253.3	10.3	0.851	134.6E
SEP 8	21 4 43.3			-21-52-58.0	381.9	3444.9	1877.5	5.1	6.5	343.0	52.3	245.6	11.3	0.919	146.9E
SEP 9	21 58 19.6			-17-44-45.7	385.2	3415.3	1861.4	5.2	6.6	339.9	64.4	236.6	12.3	0.967	159.0E
SEP 10	22 48 27.7			-12-49-47.1	388.7	3384.6	1844.6	5.2	6.3	338.1	76.6	217.4	13.3	0.993	170.4E
SEP 11	23 35 44.3			-7-26-28.9	392.3	3353.8	1827.8	4.9	5.8	337.4	88.8	117.2	14.3	0.998	174.3W
SEP 12	0 21 0.1			-1-50-59.3	395.8	3324.2	1811.7	4.3	5.0	337.6	101.0	80.2	15.3	0.981	164.3W
SEP 13	1 5 10.1			3 42 57.8	399.0	3297.5	1797.1	3.5	3.9	338.8	113.1	73.4	16.3	0.947	153.2W
SEP 14	1 49 8.4			9 3 34.3	401.7	3275.3	1785.1	2.4	2.7	340.7	125.3	71.9	17.3	0.895	1

Date (0 DT)		RA [Mean]			Dec (d ° ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		(h	m	s)					l	b	c					
OCT 1	1	16	48	50.1	-24-26-11.8	367.6	3579.3	1950.7	3.6	2.5	5.6	332.9	277.9	4.9	0.301	66.4E
OCT 2	2	17	51	11.4	-26-31-33.1	371.0	3546.5	1932.8	4.6	4.0	359.6	345.1	271.4	5.9	0.411	79.7E
OCT 3	3	18	53	35.8	-26-53-35.9	374.8	3510.4	1913.1	5.3	5.2	353.7	357.3	264.5	6.9	0.524	92.6E
OCT 4	4	19	54	13.6	-25-36-10.2	378.8	3473.5	1893.1	5.8	6.0	348.3	9.5	257.7	7.9	0.632	105.2E
OCT 5	5	20	51	42.0	-22-52-8.4	382.7	3437.7	1873.5	6.1	6.6	343.9	21.7	251.6	8.9	0.733	117.6E
OCT 6	6	21	45	26.3	-18-59-20.8	386.5	3403.8	1855.1	6.2	6.7	340.6	33.8	246.3	9.9	0.820	129.7E
OCT 7	7	22	35	36.4	-14-16-38.6	390.1	3372.3	1837.9	6.0	6.5	338.5	46.0	241.8	10.9	0.892	141.6E
OCT 8	8	23	22	50.4	-9-1-34.0	393.5	3343.3	1822.1	5.6	6.0	337.5	58.2	237.6	11.9	0.947	153.2E
OCT 9	0	0	8	0.0	-3-29-33.5	396.6	3317.0	1807.8	4.9	5.2	337.5	70.3	231.8	12.9	0.982	164.6E
OCT 10	10	0	52	0.1	2 5 52.0	399.4	3293.7	1795.0	4.1	4.2	338.4	82.5	204.7	13.9	0.998	175.3E
OCT 11	11	1	35	44.2	7 32 36.7	401.9	3273.7	1784.2	3.0	3.0	340.1	94.7	85.0	14.9	0.995	172.0W
OCT 12	12	2	20	1.8	12 39 26.4	403.8	3257.9	1775.6	1.8	1.6	342.5	106.8	74.6	15.9	0.974	161.3W
OCT 13	13	3	5	35.9	17 15 30.5	405.1	3247.3	1769.8	0.5	0.2	345.6	119.0	74.4	16.9	0.935	150.4W
OCT 14	14	3	52	59.7	21 10 4.7	405.7	3243.0	1767.4	-0.9	-1.1	349.5	131.2	76.8	17.9	0.881	139.6W
OCT 15	15	4	42	31.8	24 12 32.0	405.3	3246.1	1769.2	-2.3	-2.5	353.9	143.3	80.8	18.9	0.814	128.8W
OCT 16	16	5	34	10.5	26 12 48.9	403.8	3257.8	1775.5	-3.7	-3.7	358.8	155.5	85.9	19.9	0.736	118.0W
OCT 17	6	27	31.1	27 2 20.6	401.3	3278.8	1787.0	-5.0	-4.8	3.9	167.7	91.6	20.9	0.648	107.0W	
OCT 18	7	21	49.5	26 35 12.9	397.5	3309.5	1803.7	-6.0	-5.7	8.9	179.8	97.6	21.9	0.553	95.9W	
OCT 19	8	16	14.1	24 49 15.5	392.8	3349.5	1825.5	-6.8	-6.4	13.5	192.0	103.4	22.9	0.454	84.5W	
OCT 20	9	10	1.2	21 46 28.8	387.2	3397.9	1851.9	-7.1	-6.7	17.4	204.2	108.7	23.9	0.353	72.8W	
OCT 21	10	2	48.8	17 32 55.8	381.1	3452.5	1881.6	-7.1	-6.8	20.3	216.4	113.3	24.9	0.256	60.7W	
OCT 22	10	54	41.3	12 18 20.6	374.9	3509.7	1912.8	-6.6	-6.4	22.1	228.6	117.0	25.9	0.167	48.1W	
OCT 23	11	46	7.9	6 16 3.6	369.0	3565.1	1943.0	-5.7	-5.7	22.6	240.8	119.7	26.9	0.091	35.1W	
OCT 24	12	37	56.7	0-16-38.9	364.1	3613.2	1969.2	-4.4	-4.6	22.0	253.0	122.0	27.9	0.035	21.6W	
OCT 25	13	31	6.9	-6-58-8.4	360.6	3648.7	1988.5	-2.7	-3.1	20.2	265.3	129.1	28.9	0.005	7.9W	
OCT 26	14	26	38.1	-13-22-28.9	358.8	3667.2	1998.6	-0.9	-1.4	17.1	277.5	279.3	0.5	0.003	6.6E	
OCT 27	15	25	15.2	-19 0-46.4	358.8	3666.9	1998.4	1.0	0.4	12.9	289.7	285.2	1.5	0.032	20.6E	
OCT 28	16	27	5.2	-23-24-21.6	360.6	3648.4	1988.4	2.8	2.1	7.6	301.9	281.4	2.5	0.089	34.7E	
OCT 29	17	31	16.3	-26-10 0.0	363.9	3615.1	1970.2	4.3	3.7	1.6	314.1	275.4	3.5	0.169	48.5E	
OCT 30	18	35	57.7	-27 -5-30.7	368.4	3571.5	1946.5	5.6	5.0	355.4	326.3	268.5	4.5	0.266	61.9E	
OCT 31	19	38	54.5	-26-12-48.3	373.5	3522.7	1919.9	6.6	6.0	349.7	338.5	261.6	5.5	0.372	75.0E	
NOV 1	20	38	20.3	-23-45-50.3	378.8	3473.0	1892.8	7.1	6.6	344.9	350.7	255.5	6.5	0.481	87.7E	
NOV 2	21	33	28.3	-20 -4-53.4	384.0	3425.7	1867.0	7.4	6.8	341.3	2.8	250.4	7.5	0.588	100.0E	
NOV 3	3	22	24	27.9	-15-30-55.2	388.9	3383.0	1843.7	7.2	6.7	338.9	15.0	246.5	8.5	0.688	112.0E
NOV 4	23	12	2.9	-10-22-28.5	393.2	3345.9	1823.5	6.8	6.2	337.7	27.2	243.8	9.5	0.778	123.6E	
NOV 5	5	23	57	12.1	-4-54-58.9	396.9	3314.7	1806.5	6.1	5.5	337.4	39.3	242.2	10.5	0.855	135.1E
NOV 6	6	0	40	57.1	0 38 39.0	400.0	3289.2	1792.6	5.2	4.5	338.1	51.5	241.7	11.5	0.917	146.4E
NOV 7	7	1	24	16.4	6 7 2.4	402.4	3269.2	1781.7	4.1	3.3	339.6	63.6	242.0	12.5	0.962	157.5E
NOV 8	8	2	8	3.6	11 19 25.6	404.3	3254.2	1773.5	2.9	2.0	341.8	75.8	242.8	13.5	0.990	168.5E
NOV 9	9	2	53	4.8	16 5 1.4	405.6	3244.0	1768.0	1.5	0.6	344.7	87.9	214.5	14.5	1.000	179.3E
NOV 10	10	3	39	55.6	20 12 43.3	406.2	3238.8	1765.1	0.1	-0.8	348.4	100.1	73.2	15.5	0.992	169.7W
NOV 11	4	28	56.0	23 31 14.4	406.2	3238.8	1765.1	-1.3	-2.2	352.6	112.2	76.7	16.5	0.967	158.9W	
NOV 12	5	20	4.7	25 49 48.3	405.5	3244.6	1768.3	-2.7	-3.5	357.4	124.4	81.7	17.5	0.925	148.1W	
NOV 13	6	12	55.4	26 59 20.2	403.9	3257.1	1775.1	-4.0	-4.6	2.4	136.5	87.4	18.5	0.867	137.2W	
NOV 14	7	6	41.0	26 53 50.6	401.5	3276.9	1785.9	-5.2	-5.6	7.5	148.7	93.4	19.5	0.796	126.2W	
NOV 15	8	0	25.6	25 31 26.4	398.1	3304.9	1801.2	-6.2	-6.3	12.2	160.8	99.3	20.5	0.713	115.1W	
NOV 16	8	53	21.9	22 54 29.5	393.8	3341.2	1821.0	-6.9	-6.7	16.2	173.0	104.6	21.5	0.620	103.7W	
NOV 17	9	45	5.2	19 8 56.0	388.6	3385.7	1845.2	-7.4	-6.8	19.4	185.1	109.2	22.5	0.520	92.1W	
NOV 18	10	35	38.3	14 23 18.3	382.8	3437.2	1873.3	-7.5	-6.6	21.5	197.3	112.8	23.5	0.415	80.1W	
NOV 19	11	25	30.1	8 48 14.7	376.6	3493.5	1904.0	-7.2	-6.0	22.5	209.5	115.2	24.5	0.311	67.7W	
NOV 20	12	15	29.8	2 36 45.1	370.5	3550.9	1935.2	-6.4	-5.1	22.4	221.7	116.2	25.5	0.213	54.8W	
NOV 21	13	6	40.7	-3-54-47.7	365.0	3604.5	1964.4	-5.3	-3.8	21.2	233.9	115.8	26.5	0.126	41.5W	
NOV 22	14	0	12.6	-10-25-21.0	360.6	3648.6	1988.5	-3.7	-2.2	18.7	246.1	113.4	27.5	0.058	27.7W	
NOV 23	14	57	10.0	-16-28-31.0	357.8	3677.5	2004.2	-1.9	-0.4	15.0	258.3	108.0	28.5	0.014	13.6W	
NOV 24	15	58	10.1	-21-33-43.0	356.8	3687.2	2009.5	0.1	1.4	10.1	270.5	342.1	0.0	0.000	1.2E	
NOV 25	17	2	52.8	-25-10-34.3	357.9	3676.3	2003.6	2.1	3.1	4.3	282.7	284.5	1.0	0.017	15.0E	
NOV 26	18	9	39.2	-26-56-31.5	360.8	3646.3	1987.3	4.0	4.6	357.9	294.9	275.4	2.0	0.063	29.1E	
NOV 27	19	15	51.2	-26-44-22.4	365.3	3601.6	1962.9	5.6	5.7	351.7	307.0	267.3	3.0	0.134	42.8E	
NOV 28	20	18	54.1	-24-44 -9.8	370.8	3547.8	1933.5	6.8	6.4	346.4	319.2	260.2	4.0	0.222	56.1E	
NOV 29	21	17	17.4	-21-17-39.3	376.9	3490.5	1902.3	7.6	6.8	342.3	331.4	254.4	5.0	0.322	69.0E	
NOV 30	22	10	47.1	-16-49-55.2	383.1	3434.6	1871.8	7.9	6.7	339.5	343.6	250.0	6.0	0.426	81.3E	
DEC 1	23	0	3.3	-11-43-27.5	388.8	3383.6	1844.0	7.8	6.3	337.9	355.8	247.0	7.0	0.530	93.3E	
DEC 2	23	46	10.3	-6-16-12.3	393.9	3339.6	1820.1	7.3	5.6	337.4	7.9	245.4	8.0	0.630	104.9E	
DEC 3	0	30	18.0	0-42-0.8	398.2	3303.9	1800.6	6.4	4.7	337.9	20.1	244.9				

Date (0 DT)	RA [Mean]			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong	
	(h	m	s)				(d	'	"						l
JAN 1	1	44	51.5	8 47 22.6	401.4	3277.4	1786.2	5.1	2.4	340.5	12.7	248.5	8.6	0.652	107.6E
JAN 2	2	29	6.3	13 46 35.2	404.0	3256.9	1775.0	3.8	1.1	343.1	24.9	251.1	9.6	0.739	118.5E
JAN 3	3	14	48.3	18 12 57.4	405.4	3245.7	1768.9	2.4	-0.3	346.3	37.0	254.9	10.6	0.817	129.2E
JAN 4	4	2	35.6	21 56 18.7	405.7	3242.9	1767.4	0.9	-1.6	350.3	49.1	260.2	11.6	0.884	140.0E
JAN 5	4	52	45.7	24 45 42.0	405.1	3247.6	1769.9	-0.4	-2.9	354.8	61.3	267.3	12.6	0.936	150.7E
JAN 6	5	45	9.0	26 30 21.5	403.8	3258.4	1775.8	-1.7	-4.1	359.7	73.4	277.8	13.6	0.974	161.4E
JAN 7	6	39	5.0	27 1 30.9	401.8	3274.2	1784.4	-2.9	-5.1	4.9	85.5	301.8	14.6	0.995	171.7E
JAN 8	7	33	30.8	26 14 29.7	399.4	3294.0	1795.2	-3.8	-5.9	9.8	97.7	50.1	15.6	0.997	174.1W
JAN 9	8	27	18.9	24 10 5.7	396.6	3317.0	1807.8	-4.6	-6.4	14.2	109.8	86.5	16.6	0.981	164.0W
JAN 10	9	19	38.6	20 54 29.4	393.6	3342.8	1821.8	-5.2	-6.6	17.8	121.9	97.9	17.6	0.945	152.8W
JAN 11	10	10	9.0	16 37 49.7	390.3	3371.2	1837.3	-5.6	-6.5	20.5	134.0	104.5	18.6	0.890	141.2W
JAN 12	10	59	1.2	11 32 27.2	386.7	3402.1	1854.2	-5.8	-6.1	22.0	146.2	108.8	19.6	0.818	129.4W
JAN 13	11	46	51.8	5 51 37.5	383.0	3435.5	1872.4	-5.8	-5.3	22.5	158.3	111.3	20.6	0.731	117.4W
JAN 14	12	34	35.5	0-10-50.3	379.0	3471.1	1891.7	-5.6	-4.2	22.0	170.5	112.3	21.6	0.631	105.1W
JAN 15	13	23	19.1	-6-20-3.4	375.1	3507.8	1911.8	-5.2	-2.9	20.5	182.6	111.7	22.6	0.523	92.5W
JAN 16	14	14	15.2	-12-18-58.9	371.2	3544.2	1931.6	-4.6	-1.4	17.9	194.8	109.6	23.6	0.412	79.7W
JAN 17	15	8	33.4	-17-47-9.9	367.8	3577.5	1949.7	-3.6	0.2	14.2	207.0	105.6	24.6	0.302	66.6W
JAN 18	16	7	3.0	-22-20-20.9	365.0	3604.7	1964.5	-2.4	1.9	9.4	219.1	99.8	25.6	0.201	53.2W
JAN 19	17	9	44.9	-25-32-18.1	363.2	3622.0	1974.0	-1.0	3.4	3.7	231.3	91.8	26.6	0.115	39.6W
JAN 20	18	15	25.4	-27 0-13.7	362.8	3626.4	1976.4	0.6	4.7	357.4	243.5	81.0	27.6	0.051	26.0W
JAN 21	19	21	39.8	-26-32-32.9	363.8	3616.0	1970.7	2.2	5.7	351.3	255.7	62.3	28.6	0.012	12.8W
JAN 22	20	25	45.0	-24-14-8.8	366.4	3590.8	1957.0	3.7	6.3	345.9	267.9	327.6	0.1	0.002	5.1E
JAN 23	21	25	45.7	-20-24-28.4	370.3	3552.9	1936.3	5.0	6.6	341.8	280.1	269.8	1.1	0.019	15.9E
JAN 24	22	21	4.5	-15-30-4.8	375.3	3506.0	1910.8	6.0	6.3	339.2	292.3	257.8	2.1	0.061	28.5E
JAN 25	23	12	6.7	-9-57-12.2	380.8	3454.6	1882.8	6.5	5.8	337.8	304.4	252.1	3.1	0.123	41.0E
JAN 26	23	59	50.7	-4 7-47.6	386.6	3403.2	1854.8	6.5	4.9	337.6	316.6	249.3	4.1	0.200	53.1E
JAN 27	0	45	25.7	1 41 14.2	392.0	3355.8	1828.9	6.1	3.8	338.3	328.8	248.4	5.1	0.288	64.8E
JAN 28	1	30	0.4	7 17 2.7	396.8	3315.4	1806.9	5.4	2.6	339.9	341.0	248.9	6.1	0.381	76.1E
JAN 29	2	14	38.0	12 29 18.7	400.6	3284.0	1789.8	4.3	1.2	342.2	353.1	250.7	7.1	0.477	87.2E
JAN 30	3	0	14.0	17 8 46.3	403.2	3262.6	1778.1	3.0	-0.1	345.2	5.3	253.7	8.1	0.572	98.1E
JAN 31	3	47	32.8	21 6 7.1	404.6	3251.7	1772.2	1.6	-1.5	349.0	17.5	257.8	9.1	0.663	108.9E
FEB 1	4	37	2.2	24 11 29.1	404.7	3250.9	1771.7	0.2	-2.8	353.3	29.6	263.1	10.1	0.749	119.7E
FEB 2	5	28	46.2	26 14 43.6	403.7	3259.2	1776.3	-1.2	-3.9	358.1	41.8	269.5	11.1	0.825	130.5E
FEB 3	6	22	20.1	27 6 38.8	401.7	3275.5	1785.2	-2.4	-4.9	3.3	53.9	276.9	12.1	0.891	141.3E
FEB 4	7	16	52.4	26 40 53.4	398.9	3298.2	1797.5	-3.4	-5.7	8.3	66.0	285.9	13.1	0.943	152.3E
FEB 5	8	11	18.0	24 55 46.9	395.6	3325.3	1812.3	-4.1	-6.3	12.9	78.2	298.8	14.1	0.979	163.4E
FEB 6	9	4	39.0	21 55 10.7	392.1	3355.1	1828.5	-4.6	-6.5	16.9	90.3	335.7	15.1	0.997	173.4E
FEB 7	9	56	21.5	17 47 57.0	388.6	3385.9	1845.3	-4.9	-6.5	19.8	102.4	77.1	16.1	0.994	171.0W
FEB 8	10	46	22.0	12 46 33.0	385.1	3416.1	1861.8	-4.9	-6.1	21.7	114.6	99.6	17.1	0.970	159.9W
FEB 9	11	35	5.3	7 5 31.0	381.9	3445.0	1877.5	-4.8	-5.3	22.5	126.7	106.9	18.1	0.924	147.9W
FEB 10	12	23	16.5	1 0 29.5	379.0	3471.8	1892.1	-4.5	-4.3	22.2	138.8	110.0	19.1	0.857	135.5W
FEB 11	13	11	54.1	-5-12-4.4	376.3	3496.3	1905.5	-4.1	-3.0	20.9	151.0	110.8	20.1	0.773	123.0W
FEB 12	14	2	3.5	-11-14-36.9	373.9	3518.3	1917.5	-3.5	-1.5	18.6	163.1	109.6	21.1	0.674	110.3W
FEB 13	14	54	49.4	-16-47-51.0	371.9	3537.8	1928.1	-2.8	0.1	15.2	175.3	106.7	22.1	0.566	97.4W
FEB 14	15	51	2.4	-21-30-26.5	370.2	3553.9	1936.9	-2.0	1.7	10.8	187.5	102.1	23.1	0.452	84.4W
FEB 15	16	50	59.2	-24-59-50.9	369.0	3565.7	1943.3	-1.1	3.2	5.5	199.6	95.9	24.1	0.340	71.3W
FEB 16	17	53	59.7	-26-55-26.1	368.4	3571.6	1946.5	0.0	4.5	359.5	211.8	88.4	25.1	0.236	58.0W
FEB 17	18	58	20.5	-27 3-46.6	368.5	3570.1	1945.7	1.2	5.6	353.4	224.0	79.9	26.1	0.146	44.8W
FEB 18	20	1	44.1	-25-23-40.1	369.6	3559.8	1940.1	2.4	6.2	347.9	236.2	70.5	27.1	0.075	31.7W
FEB 19	21	2	11.4	-22 7-5.9	371.7	3540.0	1929.3	3.5	6.5	343.4	248.4	58.5	28.1	0.027	18.7W
FEB 20	21	58	41.2	17-35-17.5	374.7	3511.2	1913.6	4.4	6.4	340.1	260.6	25.4	29.1	0.004	7.0W
FEB 21	22	51	12.5	12-12-45.1	378.6	3475.1	1893.9	5.1	5.9	338.3	272.8	277.6	0.6	0.006	9.0E
FEB 22	23	40	24.6	-6-23-39.9	383.1	3434.1	1871.6	5.4	5.1	337.6	285.0	257.0	1.6	0.032	20.6E
FEB 23	0	27	15.6	0-24-43.9	387.9	3391.6	1848.4	5.4	4.0	337.9	297.2	251.5	2.6	0.079	32.5E
FEB 24	1	12	48.0	5 25 8.1	392.6	3350.8	1826.2	4.9	2.8	339.2	309.4	250.0	3.6	0.142	44.2E
FEB 25	1	58	2.0	10 54 6.3	396.9	3314.6	1806.5	4.1	1.4	341.3	321.6	250.5	4.6	0.218	55.6E
FEB 26	2	43	51.5	15 51 21.7	400.4	3285.6	1790.6	3.1	0.0	344.1	333.7	252.5	5.6	0.303	66.7E
FEB 27	3	31	1.2	20 7 5.2	402.9	3265.5	1779.7	1.8	-1.3	347.6	345.9	255.8	6.6	0.394	77.6E
FEB 28	4	20	2.2	23 31 44.7	404.1	3255.5	1774.3	0.4	-2.7	351.8	358.1	260.3	7.6	0.488	88.5E
FEB 29	5	11	5.8	25 58 56.8	404.1	3256.1	1774.6	-0.9	-3.8	356.5	10.3	265.6	8.6	0.582	99.3E
MAR 1	6	3	58.6	27 11 1.5	402.7	3267.0	1780.5	-2.2	-4.9	1.5	22.4	271.8	9.6	0.673	110.1E
MAR 2	6	58	2.4	27 10 18.1	400.3	3287.5	1791.7	-3.4	-5.7	6.6	34.6	278.4	10.6	0.759	121.1E
MAR 3	7	52	22.6	25 50 35.2	396.7	3316.2	1807.3	-4.3	-6.3	11.4	46.8	285.2	11.6	0.837	132.2E
MAR 4	8	46	4.9	23 13 14.7	392.6	3351.0	1826.3	-4.9	-6.6	15.5	58.9	292.2	12.6	0.903	143.6E
MAR 5	9	38	31.5	19 24 23.4	388.1	3389.6	1847.4	-5.2	-6.6	18.9	71.1	300.0	13.6	0.954	155.3E
MAR 6	10	29	30.8	14 34 1											

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
APR 1	9	18	44.6	21 7 49.2	391.2	3362.8	1832.8	-5.9	-6.8	17.7	40.0	291.2	11.1	0.779	123.8E
APR 2	10	9	46.3	16 40 38.2	385.9	3409.0	1857.9	-6.2	-6.5	20.3	52.2	295.9	12.1	0.858	135.7E
APR 3	10	59	44.6	11 18 53.7	380.5	3457.8	1884.5	-6.0	-5.9	21.9	64.4	299.9	13.1	0.924	147.9E
APR 4	11	49	13.5	5 16 0.4	375.3	3505.3	1910.4	-5.5	-4.9	22.4	76.5	304.2	14.1	0.972	160.5E
APR 5	12	39	3.2	-1-11-36.2	370.9	3547.3	1933.3	-4.7	-3.6	21.8	88.7	317.4	15.1	0.997	173.3E
APR 6	13	30	13.2	-7-44-10.4	367.5	3580.2	1951.2	-3.6	-2.1	20.1	100.8	99.2	16.1	0.996	172.6W
APR 7	14	23	44.3	-13-58-34.5	365.3	3601.1	1962.6	-2.4	-0.4	17.3	113.0	108.0	17.1	0.968	159.3W
APR 8	15	20	25.9	-19-29-3.5	364.6	3608.9	1966.9	-1.0	1.3	13.3	125.2	106.3	18.1	0.913	145.7W
APR 9	16	20	35.9	-23-49-19.2	365.0	3604.1	1964.3	0.4	2.9	8.2	137.3	101.7	19.1	0.836	132.1W
APR 10	17	23	38.9	-26-36-22.4	366.6	3588.6	1955.8	1.7	4.4	2.4	149.5	95.5	20.1	0.740	118.5W
APR 11	18	27	58.5	-27-35-40.4	369.0	3565.2	1943.0	2.9	5.5	356.3	161.7	88.4	21.1	0.632	105.2W
APR 12	19	31	22.9	-26-45-9.0	372.0	3536.5	1927.4	3.9	6.3	350.5	173.9	81.3	22.1	0.519	92.0W
APR 13	20	31	55.1	-24-15-12.8	375.3	3505.2	1910.3	4.6	6.7	345.6	186.1	74.8	23.1	0.407	79.2W
APR 14	21	28	31.6	-20-24-32.3	378.8	3472.9	1892.7	5.2	6.7	341.8	198.3	69.3	24.1	0.302	66.5W
APR 15	22	21	8.1	-15-34-36.9	382.4	3440.9	1875.3	5.5	6.4	339.3	210.5	65.1	25.1	0.207	54.1W
APR 16	23	10	21.1	-10-5-59.2	385.9	3409.6	1858.2	5.6	5.7	337.9	222.7	62.1	26.1	0.128	41.9W
APR 17	23	57	6.5	-4-16-46.4	389.3	3379.5	1841.8	5.4	4.7	337.6	234.9	60.2	27.1	0.067	29.9W
APR 18	0	42	25.7	1 37 18.1	392.6	3350.7	1826.1	4.9	3.5	338.3	247.2	58.6	28.1	0.025	18.1W
APR 19	1	27	18.0	7 22 19.0	395.8	3323.6	1811.4	4.3	2.1	339.8	259.4	53.7	29.1	0.003	6.6W
APR 20	2	12	36.7	12 45 29.8	398.8	3298.9	1797.9	3.4	0.7	342.1	271.6	56.8	0.4	0.002	5.0E
APR 21	2	59	6.2	17 34 45.1	401.4	3277.5	1786.3	2.4	-0.7	345.1	283.9	55.6	1.4	0.020	16.2E
APR 22	3	47	17.7	21 38 31.0	403.5	3260.6	1777.0	1.1	-2.1	348.9	296.1	54.2	2.4	0.056	27.3E
APR 23	4	37	24.2	24 45 58.0	404.9	3249.4	1770.9	-0.2	-3.4	353.3	308.3	52.8	3.4	0.108	38.2E
APR 24	5	29	15.8	26 47 42.2	405.4	3245.3	1768.7	-1.5	-4.6	358.1	320.5	51.3	4.4	0.173	49.1E
APR 25	6	22	19.0	27 36 45.4	404.9	3249.4	1771.0	-2.9	-5.5	3.2	332.8	269.7	5.4	0.250	59.9E
APR 26	7	15	44.2	27 9 35.3	403.2	3262.9	1778.3	-4.1	-6.2	8.1	345.0	275.8	6.4	0.337	70.8E
APR 27	8	8	39.7	25 26 33.5	400.4	3286.1	1790.9	-5.3	-6.7	12.6	357.2	281.5	7.4	0.430	81.8E
APR 28	9	0	27.6	22 31 37.4	396.4	3319.2	1808.9	-6.2	-6.9	16.5	9.4	286.7	8.4	0.528	93.0E
APR 29	9	50	53.8	18 31 31.0	391.4	3361.4	1831.9	-6.8	-6.7	19.4	21.6	291.1	9.4	0.627	104.5E
APR 30	10	40	9.8	13 34 59.0	385.7	3411.0	1859.0	-7.1	-6.2	21.4	33.8	294.4	10.4	0.723	116.4E
MAY 1	11	28	49.7	7 52 34.9	379.6	3465.5	1888.7	-7.0	-5.4	22.3	46.0	296.6	11.4	0.813	128.7E
MAY 2	12	17	44.8	1 37 11.5	373.7	3520.9	1918.9	-6.5	-4.2	22.2	58.1	297.5	12.4	0.891	141.4E
MAY 3	13	7	58.1	-4-54-56.3	368.3	3572.5	1947.0	-5.6	-2.8	21.0	70.3	296.9	13.4	0.952	154.6E
MAY 4	14	0	38.4	-11-23-2.5	363.9	3615.1	1970.2	-4.3	-1.1	18.6	82.5	294.2	14.4	0.989	168.1E
MAY 5	14	56	48.5	-17-21-21.5	361.0	3644.0	1986.0	-2.7	0.6	15.1	94.7	291.1	15.4	1.000	177.9W
MAY 6	15	57	5.5	-22-20-20.9	359.8	3656.2	1992.6	-1.0	2.4	10.3	106.8	288.2	16.4	0.981	163.9W
MAY 7	17	1	11.1	-25-50-44.4	360.4	3650.9	1989.7	0.8	4.0	4.6	119.0	286.7	17.4	0.933	149.9W
MAY 8	18	7	31.0	-27-30-30.9	362.5	3629.7	1978.2	2.6	5.2	358.3	131.2	93.5	18.4	0.860	135.9W
MAY 9	19	13	31.4	-27-11-59.4	365.9	3596.1	1959.9	4.1	6.2	352.1	143.4	85.8	19.4	0.768	122.2W
MAY 10	20	16	40.0	-25-3-59.5	370.1	3554.5	1937.2	5.3	6.7	346.8	155.6	78.8	20.4	0.663	108.9W
MAY 11	21	15	24.5	-21-27-7.2	374.9	3509.3	1912.5	6.2	6.8	342.6	167.8	73.0	21.4	0.552	95.9W
MAY 12	22	9	28.2	-16-46-0.5	379.8	3463.9	1887.8	6.7	6.5	339.8	180.0	68.7	22.4	0.442	83.2W
MAY 13	22	59	28.7	-11-23-37.3	384.6	3420.8	1864.3	6.8	5.9	338.2	192.2	65.8	23.4	0.338	71.0W
MAY 14	23	46	28.7	-5-39-4.9	389.1	3381.7	1843.0	6.6	4.9	337.6	204.4	64.2	24.4	0.243	59.0W
MAY 15	0	31	37.5	0 12 5.6	393.1	3347.1	1824.2	6.1	3.8	338.1	216.7	64.0	25.4	0.161	47.2W
MAY 16	1	16	1.7	5 56 50.4	396.6	3317.4	1808.0	5.4	2.5	339.4	228.9	65.2	26.4	0.094	35.7W
MAY 17	2	0	40.8	11 23 21.5	399.6	3292.4	1794.4	4.5	1.0	341.4	241.1	68.0	27.4	0.045	24.4W
MAY 18	2	46	25.2	16 20 13.4	402.1	3272.0	1783.2	3.3	-0.4	344.2	253.4	73.8	28.4	0.013	13.2W
MAY 19	3	33	52.1	20 35 58.0	404.0	3256.1	1774.6	2.1	-1.8	347.8	265.6	107.5	29.4	0.001	2.6W
MAY 20	4	23	20.4	23 59 14.3	405.4	3245.0	1768.6	0.8	-3.1	352.0	277.9	245.5	0.8	0.006	9.0E
MAY 21	5	14	44.6	26 19 37.2	406.2	3239.2	1765.3	-0.6	-4.3	356.7	290.1	256.4	1.8	0.030	19.8E
MAY 22	6	7	32.5	27 28 56.1	406.2	3239.2	1765.4	-1.9	-5.3	1.7	302.3	263.9	2.8	0.070	30.7E
MAY 23	7	0	51.2	27 22 40.0	405.3	3246.0	1769.1	-3.2	-6.1	6.7	314.6	270.7	3.8	0.126	41.5E
MAY 24	7	53	42.3	26 0 44.5	403.5	3260.3	1776.9	-4.5	-6.6	11.4	326.8	277.1	4.8	0.196	52.4E
MAY 25	8	45	18.9	23 27 15.5	400.7	3283.1	1789.3	-5.6	-6.8	15.4	339.1	282.7	5.8	0.278	63.5E
MAY 26	9	35	19.4	19 49 19.9	396.9	3314.7	1806.5	-6.5	-6.7	18.6	351.3	287.4	6.8	0.369	74.7E
MAY 27	10	23	50.0	15 15 46.2	392.1	3355.0	1828.5	-7.2	-6.3	20.8	3.5	291.1	7.8	0.468	86.1E
MAY 28	11	11	21.6	9 56 17.5	386.6	3403.3	1854.8	-7.5	-5.6	22.1	15.7	293.6	8.8	0.570	97.9E
MAY 29	11	58	44.2	4 1 36.4	380.5	3457.8	1884.5	-7.6	-4.6	22.3	27.9	294.8	9.8	0.673	110.1E
MAY 30	12	47	1.5	-2-15-39.3	374.3	3515.3	1915.9	-7.2	-3.3	21.6	40.1	294.6	10.8	0.771	122.7E
MAY 31	13	37	26.8	-8-39-24.7	368.4	3571.7	1946.6	-6.3	-1.8	19.8	52.3	292.7	11.8	0.859	135.8E
JUN 1	14	31	15.8	-14-48-27.7	363.3	3621.5	1973.7	-5.1	-0.1	16.8	64.5	288.4	12.8	0.931	149.4E
JUN 2	15	29	31.3	-20-15-40.2	359.6	3659.0	1994.2	-3.4	1.7	12.6	76.7	279.8	13.8	0.979	163.2E
JUN 3	16	32	34.1	-24-29-37.0	357.5	3679.7	2005.4	-1.5	3.3	7.2	88.9	234.0	14.8	0.999	176.4E
JUN 4	17	39	27.5	-27 0-29.1	357.4	3680.7	2006.0	0.5	4.7	1.0	101				

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (")	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JUL 1	17	9	3.5	-26 -8-29.1	358.3	3671.7	2001.1	-2.1	4.2	3.9	71.1	266.7	13.1	0.966	158.8E
JUL 2	18	17	3.5	-27-30-34.9	357.4	3680.7	2006.0	0.0	5.4	357.4	83.3	236.7	14.1	0.995	172.2E
JUL 3	19	25	26.8	-26-47-31.6	358.5	3669.9	2000.1	2.1	6.2	351.2	95.5	113.3	15.1	0.994	171.0W
JUL 4	20	31	5.1	-24 -7 -0.1	361.4	3640.7	1984.2	4.1	6.6	345.8	107.7	88.2	16.1	0.963	157.7W
JUL 5	21	31	58.9	-19-53 -3.7	365.8	3596.7	1960.2	5.7	6.5	341.7	119.9	78.3	17.1	0.905	144.1W
JUL 6	22	27	42.2	-14-36 -7.5	371.3	3543.2	1931.0	6.9	6.0	339.1	132.1	72.5	18.1	0.828	130.8W
JUL 7	23	18	56.2	-8-44-30.6	377.4	3485.7	1899.7	7.6	5.1	337.9	144.3	69.0	19.1	0.736	118.0W
JUL 8	0	6	52.4	-2-40-49.3	383.7	3429.2	1868.9	7.8	4.0	337.8	156.5	67.4	20.1	0.636	105.6W
JUL 9	0	52	48.2	3 18 0.1	389.5	3377.4	1840.7	7.5	2.8	338.6	168.7	67.3	21.1	0.533	93.7W
JUL 10	1	37	56.6	8 59 6.0	394.7	3332.9	1816.4	6.9	1.4	340.3	180.9	68.6	22.1	0.433	82.1W
JUL 11	2	23	21.7	14 11 52.7	399.1	3296.8	1796.8	5.9	0.0	342.7	193.1	71.2	23.1	0.337	70.8W
JUL 12	3	9	55.9	18 46 32.6	402.4	3269.8	1782.1	4.7	-1.4	345.9	205.4	75.0	24.1	0.249	59.8W
JUL 13	3	58	16.3	22 33 16.0	404.6	3251.6	1772.1	3.4	-2.7	349.8	217.6	80.1	25.1	0.172	48.9W
JUL 14	4	48	37.6	25 22 8.1	405.9	3241.6	1766.7	2.0	-3.9	354.2	229.9	86.7	26.1	0.107	38.1W
JUL 15	5	40	47.2	27 3 59.3	406.2	3239.0	1765.3	0.6	-4.9	359.1	242.1	95.3	27.1	0.056	27.4W
JUL 16	6	34	3.9	27 31 58.9	405.7	3242.9	1767.4	-0.7	-5.7	4.2	254.4	107.9	28.1	0.021	16.8W
JUL 17	7	27	27.5	26 43 16.2	404.5	3252.4	1772.6	-1.9	-6.3	9.0	266.6	140.5	29.1	0.004	7.1W
JUL 18	8	19	56.4	24 39 55.9	402.7	3266.9	1780.5	-3.0	-6.5	13.4	278.9	242.9	0.5	0.004	7.7E
JUL 19	9	10	46.6	21 28 35.1	400.4	3286.0	1790.9	-4.0	-6.5	17.0	291.1	271.4	1.5	0.024	17.7E
JUL 20	9	59	42.0	17 19 1.5	397.5	3309.4	1803.6	-4.9	-6.2	19.7	303.4	281.5	2.5	0.062	28.7E
JUL 21	10	46	55.2	12 22 38.2	394.2	3337.2	1818.8	-5.6	-5.6	21.5	315.6	287.1	3.5	0.118	40.1E
JUL 22	11	33	1.7	6 51 19.9	390.5	3369.3	1836.3	-6.1	-4.8	22.3	327.8	290.5	4.5	0.191	51.7E
JUL 23	12	18	53.6	0 57 15.1	386.3	3405.9	1856.2	-6.4	-3.6	22.1	340.1	292.0	5.5	0.278	63.5E
JUL 24	13	5	34.9	-5 -6-44.8	381.8	3446.3	1878.2	-6.5	-2.3	21.0	352.3	292.0	6.5	0.377	75.6E
JUL 25	13	54	17.4	-11 -6 -0.3	377.0	3489.5	1901.8	-6.3	-0.8	18.9	4.5	290.4	7.5	0.485	88.1E
JUL 26	14	46	15.4	-16-42-38.7	372.3	3533.6	1925.8	-5.8	0.8	15.8	16.7	287.2	8.5	0.595	100.9E
JUL 27	15	42	33.0	-21-34-24.8	367.9	3575.7	1948.8	-4.9	2.4	11.6	29.0	282.2	9.5	0.704	114.0E
JUL 28	16	43	39.2	-25-15 -3.2	364.2	3612.0	1968.6	-3.6	3.8	6.2	41.2	275.2	10.5	0.805	127.5E
JUL 29	17	48	54.9	-27-18 -0.3	361.6	3638.3	1982.9	-2.0	5.1	0.1	53.4	266.3	11.5	0.890	141.2E
JUL 30	18	56	16.0	-27-24 -5.3	360.4	3650.7	1989.6	-0.2	5.9	353.8	65.5	254.6	12.5	0.953	154.9E
JUL 31	20	2	46.8	-25-29-44.5	360.8	3646.7	1987.4	1.7	6.4	348.0	77.7	233.5	13.5	0.990	168.3E
AUG 1	21	5	54.4	-21-49-20.6	362.9	3625.8	1976.1	3.5	6.5	343.3	89.9	128.6	14.5	0.997	174.0W
AUG 2	22	4	24.0	-16-49-27.7	366.5	3590.0	1956.5	5.1	6.1	340.1	102.1	84.3	15.5	0.976	162.2W
AUG 3	22	58	19.8	-11 0 -0.5	371.3	3543.0	1930.9	6.3	5.3	338.3	114.3	74.3	16.5	0.930	149.2W
AUG 4	23	48	33.9	-4-47-54.1	377.0	3489.7	1901.9	7.0	4.2	337.7	126.5	70.0	17.5	0.863	136.4W
AUG 5	0	36	17.0	1 25 19.6	383.0	3435.0	1872.1	7.2	3.0	338.2	138.7	68.4	18.5	0.780	124.0W
AUG 6	1	22	41.2	7 23 15.9	388.9	3383.3	1843.9	7.0	1.6	339.7	150.9	68.6	19.5	0.688	112.0W
AUG 7	2	8	52.7	12 53 12.5	394.2	3337.7	1819.0	6.4	0.1	341.9	163.1	70.4	20.5	0.591	100.4W
AUG 8	2	55	47.1	17 44 35.7	398.6	3300.4	1798.7	5.4	-1.3	344.9	175.3	73.4	21.5	0.493	89.1W
AUG 9	3	44	6.6	21 47 48.0	402.0	3272.7	1783.7	4.3	-2.6	348.6	187.5	77.6	22.5	0.398	78.0W
AUG 10	4	34	13.7	24 53 34.5	404.2	3255.0	1774.0	2.9	-3.8	352.9	199.7	82.8	23.5	0.307	67.1W
AUG 11	5	26	6.2	26 53 17.5	405.2	3246.8	1769.5	1.6	-4.8	357.7	212.0	89.1	24.5	0.224	56.3W
AUG 12	6	19	14.5	27 40 0.2	405.1	3247.7	1770.0	0.3	-5.6	2.7	224.2	96.2	25.5	0.150	45.5W
AUG 13	7	12	46.9	27 9 54.5	404.0	3256.3	1774.7	-1.0	-6.2	7.7	236.5	104.0	26.5	0.089	34.7W
AUG 14	8	5	44.5	25 23 31.3	402.1	3271.6	1783.0	-2.1	-6.5	12.2	248.7	113.4	27.5	0.043	23.8W
AUG 15	8	57	19.1	22 25 53.4	399.6	3292.0	1794.2	-3.0	-6.6	16.1	260.9	128.3	28.5	0.013	13.1W
AUG 16	9	47	6.2	18 25 48.3	396.7	3316.4	1807.4	-3.8	-6.3	19.1	273.2	191.4	29.5	0.002	4.8E
AUG 17	10	35	8.6	13 34 31.5	393.5	3343.4	1822.2	-4.4	-5.7	21.1	285.4	270.5	0.9	0.010	11.7E
AUG 18	11	21	53.1	8 4 39.3	390.1	3372.3	1837.9	-4.9	-4.8	22.1	297.7	284.5	1.9	0.040	23.0E
AUG 19	12	8	4.0	2 9 31.8	386.7	3402.3	1854.3	-5.1	-3.7	22.2	309.9	289.4	2.9	0.090	34.7E
AUG 20	12	54	37.9	-3-56-48.1	383.2	3433.1	1871.0	-5.2	-2.3	21.3	322.1	291.1	3.9	0.158	46.8E
AUG 21	13	42	39.3	-9-59 -6.1	379.8	3464.3	1888.0	-5.1	-0.9	19.5	334.4	290.7	4.9	0.244	59.1E
AUG 22	14	33	15.7	-15-40 -7.9	376.4	3495.5	1905.0	-4.8	0.7	16.7	346.6	288.4	5.9	0.344	71.7E
AUG 23	15	27	27.9	-20-39-53.0	373.2	3525.8	1921.5	-4.3	2.3	12.8	358.8	284.4	6.9	0.453	84.5E
AUG 24	16	25	52.5	-24-35-36.9	370.2	3553.8	1936.8	-3.5	3.7	7.9	11.0	278.8	7.9	0.567	97.5E
AUG 25	17	28	15.7	-27 -3-54.4	367.7	3577.8	1949.9	-2.4	4.9	2.1	23.2	271.7	8.9	0.678	110.7E
AUG 26	18	33	14.6	-27-45-38.5	366.0	3595.1	1959.3	-1.1	5.9	356.0	35.4	263.6	9.9	0.782	124.2E
AUG 27	19	38	29.2	-26-32-31.6	365.1	3603.2	1963.7	0.3	6.4	350.1	47.6	255.0	10.9	0.870	137.7E
AUG 28	20	41	34.9	-23-31 -1.7	365.5	3600.0	1962.0	1.9	6.6	345.1	59.8	245.7	11.9	0.938	151.2E
AUG 29	21	40	58.2	-19 0-29.3	367.1	3584.3	1953.5	3.3	6.3	341.3	72.0	233.1	12.9	0.982	164.5E
AUG 30	22	36	15.5	-13-27 -2.8	369.9	3556.7	1938.4	4.6	5.6	338.9	84.2	175.2	13.9	0.998	175.5W
AUG 31	23	27	56.8	-7-17-34.8	373.9	3519.0	1917.9	5.5	4.6	337.9	96.3	83.1	14.9	0.988	167.7W
SEP 1	0	16	59.8	0-56 -3.1	378.7	3474.5	1893.6	6.1	3.3	337.9	108.5	72.1	15.9	0.954	155.2W
SEP 2	1	4	30.3	5 17 41.8	383.9	3426.9	1867.7	6.3	1.9	339.0	120.7	69.5	16.9	0.899	142.9W
SEP 3	1	51	31.5	11 7 42.3	389.2	3380.2	1842.2	6.0	0.4	341.0	132.9	69.7	17.9	0.829	131.0W
SEP 4	2	38													

Date (0 DT)	RA [Mean]			Dec			Dist (1000*km)	H.P.	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)	(d	'	")				l	b	c					
OCT 1	2	20	55.4	14	34	54.6	391.3	3362.6	1832.6	5.0	-0.7	342.6	114.5	70.1	16.4	0.935	150.4W
OCT 2	3	9	34.8	19	23	43.7	395.5	3326.8	1813.1	4.3	-2.1	345.9	126.7	72.5	17.4	0.877	138.8W
OCT 3	3	59	45.8	23	16	56.9	399.1	3296.1	1796.4	3.4	-3.5	349.8	138.9	76.5	18.4	0.805	127.5W
OCT 4	4	51	32.5	26	4	51.1	402.0	3272.8	1783.7	2.3	-4.6	354.4	151.0	81.5	19.4	0.723	116.4W
OCT 5	5	44	34.1	27	40	4.3	403.8	3258.3	1775.8	1.0	-5.6	359.4	163.2	87.3	20.4	0.635	105.5W
OCT 6	6	38	8.4	27	58	22.5	404.3	3253.9	1773.4	-0.3	-6.3	4.4	175.4	93.4	21.4	0.542	94.6W
OCT 7	7	31	23.1	26	59	14.3	403.6	3260.0	1776.7	-1.5	-6.7	9.3	187.6	99.5	22.4	0.447	83.8W
OCT 8	8	23	31.8	24	45	50.2	401.6	3276.4	1785.6	-2.7	-6.8	13.6	199.8	105.2	23.4	0.353	72.8W
OCT 9	9	14	6.9	21	24	23.7	398.4	3302.4	1799.8	-3.7	-6.7	17.1	212.0	110.2	24.4	0.264	61.7W
OCT 10	10	3	5.4	17	3	18.6	394.3	3336.4	1818.3	-4.4	-6.2	19.8	224.2	114.4	25.4	0.182	50.3W
OCT 11	10	50	47.4	11	52	32.3	389.7	3376.4	1840.1	-4.9	-5.5	21.5	236.4	117.6	26.4	0.110	38.7W
OCT 12	11	37	51.4	6	3	31.7	384.8	3419.4	1863.6	-5.1	-4.4	22.2	248.6	120.1	27.4	0.054	26.7W
OCT 13	12	25	9.0	0	-10	-20.8	380.0	3462.4	1887.0	-5.0	-3.1	21.9	260.8	122.5	28.4	0.016	14.3W
OCT 14	13	13	40.3	-6	-33	-4.9	375.7	3501.8	1908.5	-4.5	-1.5	20.7	273.1	149.7	29.4	0.000	1.9W
OCT 15	14	4	29.1	-12	-45	-24.0	372.2	3534.7	1926.4	-3.8	0.1	18.4	285.3	290.5	0.9	0.010	11.4E
OCT 16	14	58	33.7	-18	-24	-34.2	369.7	3558.8	1939.5	-2.9	1.8	15.0	297.5	289.5	1.9	0.046	24.6E
OCT 17	15	56	30.5	-23	-5	-19.3	368.2	3573.0	1947.3	-1.9	3.3	10.5	309.7	285.2	2.9	0.106	37.9E
OCT 18	16	58	10.5	-26	-22	-35.7	367.8	3577.5	1949.7	-0.7	4.7	5.0	321.9	279.0	3.9	0.188	51.3E
OCT 19	18	2	20.8	-27	-56	-27.4	368.2	3573.4	1947.5	0.5	5.8	359.0	334.1	271.9	4.9	0.287	64.7E
OCT 20	19	6	53.3	-27	-37	-41.5	369.3	3562.4	1941.5	1.7	6.5	352.9	346.3	264.5	5.9	0.397	77.9E
OCT 21	20	9	29.8	-25	-30	-41.0	371.0	3546.2	1932.7	2.7	6.8	347.6	358.5	257.5	6.9	0.511	91.1E
OCT 22	21	8	35.4	-21	-51	-13.4	373.1	3526.3	1921.8	3.7	6.7	343.3	10.7	251.7	7.9	0.623	104.1E
OCT 23	22	3	40.1	-17	-1	-2.8	375.5	3503.6	1909.5	4.4	6.2	340.2	22.8	247.1	8.9	0.728	117.0E
OCT 24	22	55	8.1	-11	-22	-48.5	378.2	3478.7	1895.9	5.0	5.3	338.5	35.0	244.0	9.9	0.820	129.7E
OCT 25	23	43	53.1	-5	-17	-26.0	381.2	3451.7	1881.2	5.3	4.2	337.8	47.2	242.4	10.9	0.895	142.2E
OCT 26	0	30	59.6	0	56	28.8	384.4	3423.0	1865.5	5.4	2.8	338.2	59.3	242.1	11.9	0.951	154.5E
OCT 27	1	17	31.5	7	2	19.0	387.8	3392.9	1849.1	5.2	1.3	339.5	71.5	243.5	12.9	0.986	166.6E
OCT 28	2	4	26.4	12	44	52.2	391.3	3362.3	1832.5	4.9	-0.2	341.6	83.6	254.3	13.9	1.000	178.5E
OCT 29	2	52	30.7	17	49	59.0	394.8	3332.4	1816.1	4.2	-1.7	344.6	95.8	266.0	14.9	0.992	169.8W
OCT 30	3	42	14.4	22	4	32.4	398.1	3304.5	1801.0	3.4	-3.1	348.4	107.9	271.1	15.9	0.965	158.4W
OCT 31	4	33	44.7	25	16	56.8	401.0	3280.6	1787.9	2.4	-4.3	352.8	120.1	276.5	16.9	0.921	147.2W
NOV 1	5	26	42.1	27	18	3.9	403.3	3262.2	1777.9	1.3	-5.3	357.7	132.2	82.4	17.9	0.861	136.2W
NOV 2	6	20	22.1	28	2	20.7	404.7	3251.2	1771.9	0.0	-6.1	2.7	144.4	88.7	18.9	0.790	125.3W
NOV 3	7	13	47.3	27	28	36.6	405.0	3248.8	1770.6	-1.3	-6.6	7.7	156.5	94.9	19.9	0.708	114.4W
NOV 4	8	6	4.2	25	39	57.3	404.0	3256.2	1774.6	-2.5	-6.8	12.1	168.7	100.8	20.9	0.619	103.6W
NOV 5	8	56	39.4	22	42	44.4	401.9	3273.8	1784.2	-3.7	-6.8	15.9	180.9	105.9	21.9	0.525	92.7W
NOV 6	9	45	26.2	18	45	13.0	398.5	3301.7	1799.5	-4.8	-6.4	18.9	193.1	110.1	22.9	0.429	81.6W
NOV 7	10	32	43.4	13	56	29.5	394.0	3339.2	1819.9	-5.6	-5.8	20.9	205.2	113.3	23.9	0.333	70.3W
NOV 8	11	19	9.7	8	26	14.4	388.7	3384.7	1844.7	-6.1	-4.8	22.0	217.4	115.4	24.9	0.241	58.7W
NOV 9	12	5	38.5	2	25	13.0	383.0	3435.5	1872.4	-6.2	-3.6	22.1	229.6	116.1	25.9	0.158	46.7W
NOV 10	12	53	13.6	-3	-53	-36.6	377.2	3488.2	1901.0	-6.0	-2.2	21.3	241.8	115.2	26.9	0.087	34.2W
NOV 11	13	43	5.1	-10	-13	-37.9	371.8	3538.2	1928.3	-5.4	-0.5	19.5	254.0	112.1	27.9	0.034	21.3W
NOV 12	14	36	22.6	-16	-13	-21.9	367.4	3580.9	1951.6	-4.4	1.1	16.5	266.2	101.8	28.9	0.005	8.2W
NOV 13	15	33	59.8	-21	-26	-16.6	364.2	3612.0	1968.5	-3.1	2.8	12.3	278.4	305.4	0.4	0.003	5.8E
NOV 14	16	36	7.6	-25	-22	-58.8	362.6	3628.7	1977.6	-1.5	4.3	7.0	290.6	287.6	1.4	0.029	19.4E
NOV 15	17	41	44.1	-27	-36	-54.5	362.4	3630.0	1978.3	0.2	5.5	0.9	302.8	278.3	2.4	0.082	33.2E
NOV 16	18	48	30.0	-27	-52	-25.2	363.7	3617.0	1971.2	1.8	6.3	354.7	315.0	269.8	3.4	0.159	47.0E
NOV 17	19	53	35.2	-26	-10	-35.8	366.2	3592.5	1957.9	3.3	6.7	348.9	327.2	262.0	4.4	0.255	60.5E
NOV 18	20	54	50.4	-22	-47	-55.8	369.6	3560.1	1940.2	4.6	6.7	344.2	339.4	255.5	5.4	0.362	73.8E
NOV 19	21	51	26.3	-18	-9	-4.6	373.4	3523.3	1920.2	5.5	6.2	340.9	351.6	250.5	6.4	0.474	86.9E
NOV 20	22	43	43.0	-12	-39	-26.8	377.5	3485.3	1899.5	6.1	5.5	338.8	3.7	247.1	7.4	0.585	99.6E
NOV 21	23	32	39.5	-6	-41	-16.3	381.6	3447.9	1879.1	6.4	4.4	337.9	15.9	245.3	8.4	0.689	112.0E
NOV 22	0	19	28.1	0	-32	-55.5	385.5	3412.7	1859.9	6.4	3.1	338.0	28.0	245.0	9.4	0.782	124.2E
NOV 23	1	5	20.4	5	30	10.3	389.2	3380.0	1842.1	6.1	1.7	339.1	40.2	246.2	10.4	0.861	136.1E
NOV 24	1	51	21.6	11	14	16.6	392.7	3350.1	1825.8	5.6	0.2	341.0	52.3	249.1	11.4	0.924	147.8E
NOV 25	2	38	25.9	16	26	20.2	395.9	3323.0	1811.0	4.9	-1.3	343.7	64.5	254.6	12.4	0.968	159.3E
NOV 26	3	27	12.0	20	53	33.1	398.8	3298.9	1797.9	4.0	-2.7	347.2	76.6	267.7	13.4	0.993	170.4E
NOV 27	4	17	56.5	24	23	39.0	401.4	3277.9	1786.5	3.0	-3.9	351.4	88.7	271.1	14.4	0.999	176.5W
NOV 28	5	10	27.4	26	45	56.8	403.5	3260.8	1777.1	1.9	-5.0	356.1	100.9	281.9	15.4	0.986	166.6W
NOV 29	6	4	3.1	27	52	54.8	405.0	3248.4	1770.4	0.7	-5.8	1.2	113.0	80.4	16.4	0.956	155.8W
NOV 30	6	57	41.7	27	41	38.0	405.9	3241.7	1766.7	-0.6	-6.4	6.2	125.2	88.7	17.4	0.910	145.0W
DEC 1	7	50	19.5	26	14	16.8	405.8	3241.9	1766.9	-1.9	-6.7	10.8	137.3	95.6	18.4	0.850	134.3W
DEC 2	8	41	10.4	23	37	15.4	404.8	3250.2	1771.4	-3.2	-6.7	14.8	149.4	101.6	19.4	0.777	123.5W
DEC 3	9	29	57.1	19	59	28.9	402.6	3267.5	1780.8	-4.4	-6.4	18.0	161.6	106.4	20.4	0.694	112.6W
DEC 4	10	16	51.2	15	30	43.0	399.4	3294.4	1795.5	-5.5	-5.9	20.3	173.7	110.1	21.4	0.602	101.6W
DEC 5	11	2	27.6	10	20	38.2	395.0	3331.1	1815.4	-6.4	-5.0	21.7	185.9	112.7	22.4	0.505	90.4W
DEC 6	11	47	37.9	4	38	50.6	389.6	3376.8	1840.3	-7.0	-3.9	22.2	198.1	114.0	23.4	0.405	78.9W
DEC 7	12	33	25.7	-1	-24	-17.5	383.6	3429.8	1869.3	-7.3	-2.6	21.8	210.2	114.1	24.4	0.306	67.0W
DEC 8	13	21	3.9	-7	-36	-8.2	377.3	3487.4	1900.6	-7.2	-1.1	20.4	222.4	112.5	25.4	0.212	54.7W
DEC 9	14	11	50.9	-13	-39	-55.0	371.1	3545.3	1932.2	-6.6	0.5	18.0	234.6	109.1	26.4	0.128	41.9W
DEC 10	15	7	0.8	-19	-13	-1.4	365.6	3598.3	1961.1	-5.5	2.1	14.4	246.8	102.8	27.4	0.061	28.6W
DEC 11	16	7	21.0	-23	-46	-47.0	361.4	3640.6	1984.1	-4.0	3.7	9.6	259.0	90.4	28.4	0.017	15.2W
DEC 12	17	12	35.6	-26	-49	-46.2	358.8	3667.3	1998.7	-2.1							

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	h	m	s					l	b	c					
JAN 1	10	49	21.4	11 38 47.4	399.6	3292.2	1794.3	-5.6	-5.0	21.3	154.2	110.0	19.9	0.761	121.3W
JAN 2	11	33	44.2	6 10 22.7	395.7	3325.0	1812.1	-6.6	-4.0	22.1	166.4	112.2	20.9	0.673	110.1W
JAN 3	12	18	6.2	0 21 10.4	390.9	3366.1	1834.5	-7.3	-2.8	22.0	178.5	113.1	21.9	0.577	98.7W
JAN 4	13	3	35.4	-5-37-59.8	385.3	3414.7	1861.0	-7.7	-1.4	21.0	190.7	112.6	22.9	0.474	86.9W
JAN 5	13	51	28.2	-11-34 -2.7	379.2	3469.3	1890.8	-7.7	0.1	19.1	202.8	110.6	23.9	0.370	74.7W
JAN 6	14	43	4.0	-17 -9-45.6	373.0	3526.8	1922.1	-7.3	1.7	16.1	215.0	106.9	24.9	0.267	62.1W
JAN 7	15	39	32.8	-22 -2-11.9	367.2	3583.0	1952.7	-6.4	3.2	11.9	227.2	101.1	25.9	0.173	49.1W
JAN 8	16	41	27.0	-25-42-52.6	362.2	3632.3	1979.6	-5.0	4.5	6.6	239.4	92.8	26.9	0.094	35.6W
JAN 9	17	48	2.0	-27-42 -3.1	358.6	3668.9	1999.6	-3.1	5.6	0.4	251.5	80.4	27.9	0.036	21.9W
JAN 10	18	56	55.0	-27-38 -6.0	356.8	3687.9	2009.9	-1.0	6.3	354.0	263.7	50.8	28.9	0.006	8.7W
JAN 11	20	4	46.6	-25-27-33.9	356.9	3686.2	2009.0	1.2	6.5	348.1	275.9	292.9	0.5	0.006	8.7E
JAN 12	21	8	49.7	-21-27-31.7	359.1	3664.2	1997.0	3.4	6.3	343.4	288.1	265.1	1.5	0.036	21.9E
JAN 13	22	7	51.4	-16 -8 -3.2	362.9	3625.0	1975.6	5.2	5.6	340.2	300.3	255.4	2.5	0.094	35.6E
JAN 14	23	2	5.7	-10 -1-37.9	368.1	3573.8	1947.7	6.6	4.6	338.4	312.5	250.4	3.5	0.173	49.0E
JAN 15	23	52	36.1	-3-36-24.1	374.1	3516.4	1916.5	7.5	3.3	337.9	324.7	247.9	4.5	0.266	62.0E
JAN 16	0	40	41.6	2 45 49.5	380.4	3458.5	1884.9	7.8	1.9	338.4	336.8	247.4	5.5	0.367	74.5E
JAN 17	1	27	39.9	8 48 39.7	386.5	3404.1	1855.2	7.7	0.4	339.9	349.0	248.4	6.5	0.471	86.6E
JAN 18	2	14	39.7	14 19 18.3	392.0	3356.1	1829.1	7.2	-1.0	342.2	1.2	250.8	7.5	0.573	98.3E
JAN 19	3	2	36.1	19 6 49.4	396.7	3316.1	1807.3	6.4	-2.4	345.3	13.3	254.5	8.5	0.669	109.6E
JAN 20	3	52	6.2	23 1 4.3	400.5	3284.7	1790.1	5.4	-3.7	349.1	25.5	259.5	9.5	0.756	120.7E
JAN 21	4	43	22.6	25 52 29.8	403.4	3261.7	1777.7	4.2	-4.7	353.6	37.6	265.7	10.5	0.833	131.7E
JAN 22	5	36	8.4	27 32 54.7	405.2	3246.7	1769.5	2.9	-5.6	358.5	49.7	273.1	11.5	0.897	142.4E
JAN 23	6	29	38.2	27 56 57.6	406.2	3238.8	1765.1	1.6	-6.2	3.5	61.9	282.2	12.5	0.946	153.1E
JAN 24	7	22	49.8	27 3 33.6	406.4	3237.1	1764.2	0.3	-6.5	8.4	74.0	295.2	13.5	0.980	163.6E
JAN 25	8	14	43.3	24 56 28.3	405.9	3240.9	1766.3	-0.9	-6.6	12.7	86.1	328.7	14.5	0.996	173.1E
JAN 26	9	4	38.6	21 43 35.8	404.8	3249.8	1771.1	-2.1	-6.3	16.3	98.3	68.8	15.5	0.995	172.2W
JAN 27	9	52	23.6	17 35 26.7	403.1	3263.4	1778.6	-3.3	-5.8	19.1	110.4	95.8	16.5	0.977	162.3W
JAN 28	10	38	13.4	12 43 33.4	400.9	3281.9	1788.6	-4.3	-5.0	21.0	122.5	104.9	17.5	0.940	151.6W
JAN 29	11	22	43.6	7 19 29.4	398.0	3305.4	1801.4	-5.3	-4.0	21.9	134.7	109.4	18.5	0.886	140.5W
JAN 30	12	6	44.0	1 34 30.8	394.6	3334.4	1817.2	-6.2	-2.8	22.1	146.8	111.7	19.5	0.817	129.2W
JAN 31	12	51	14.9	-4-20 -0.7	390.5	3369.1	1836.2	-6.8	-1.5	21.3	159.0	112.3	20.5	0.734	117.7W
FEB 1	13	37	24.2	-10-11-43.5	385.9	3409.4	1858.1	-7.2	0.0	19.7	171.1	111.3	21.5	0.639	105.9W
FEB 2	14	26	24.7	-15-45-56.2	380.8	3454.7	1882.8	-7.3	1.5	17.1	183.3	108.7	22.5	0.535	93.8W
FEB 3	15	19	26.5	-20-44-12.0	375.5	3503.3	1909.3	-7.0	3.0	13.5	195.4	104.5	23.5	0.426	81.4W
FEB 4	16	17	19.7	-24-43-32.6	370.3	3552.5	1936.1	-6.3	4.3	8.8	207.6	98.6	24.5	0.318	68.5W
FEB 5	17	20	4.7	-27-17-54.0	365.6	3598.5	1961.2	-5.1	5.4	3.1	219.8	91.1	25.5	0.216	55.3W
FEB 6	18	26	22.7	-28 -3-25.3	361.8	3636.4	1981.8	-3.6	6.2	356.8	232.0	82.0	26.5	0.127	41.7W
FEB 7	19	33	39.1	-26-47 -1.5	359.3	3661.3	1995.4	-1.7	6.5	350.7	244.2	71.3	27.5	0.058	27.9W
FEB 8	20	39	1.7	-23-33 -3.1	358.6	3669.2	1999.7	0.4	6.4	345.5	256.4	55.1	28.5	0.015	14.1W
FEB 9	21	40	32.6	-18-42-28.3	359.6	3658.2	1993.7	2.4	5.9	341.5	268.6	329.7	0.1	0.002	4.6E
FEB 10	22	37	38.2	-12-45-29.4	362.5	3629.2	1977.9	4.2	4.9	339.1	280.8	262.1	1.1	0.018	15.3E
FEB 11	23	30	50.6	-6-13-22.4	366.9	3585.4	1954.1	5.7	3.7	338.0	292.9	251.9	2.1	0.061	28.6E
FEB 12	0	21	14.4	0 26 32.5	372.5	3532.0	1925.0	6.7	2.2	338.1	305.1	248.6	3.1	0.127	41.7E
FEB 13	1	10	2.6	6 52 25.8	378.7	3474.5	1893.6	7.2	0.7	339.2	317.3	248.1	4.1	0.210	54.4E
FEB 14	1	58	23.6	12 47 26.5	384.9	3418.0	1862.8	7.2	-0.9	341.3	329.5	249.5	5.1	0.303	66.6E
FEB 15	2	47	14.5	17 58 21.0	390.8	3366.4	1834.7	6.8	-2.3	344.2	341.7	252.4	6.1	0.401	78.4E
FEB 16	3	37	15.7	22 14 16.2	396.0	3322.5	1810.8	6.1	-3.6	347.9	353.9	256.6	7.1	0.500	89.9E
FEB 17	4	28	45.5	25 25 56.6	400.1	3287.9	1791.9	5.1	-4.7	352.2	6.0	261.8	8.1	0.597	101.0E
FEB 18	5	21	34.9	27 25 50.8	403.2	3263.1	1778.4	3.9	-5.6	357.1	18.2	267.9	9.1	0.688	112.0E
FEB 19	6	15	8.0	28 9 1.0	405.0	3248.1	1770.2	2.6	-6.2	2.1	30.3	274.6	10.1	0.772	122.8E
FEB 20	7	8	31.1	27 34 5.8	405.8	3242.2	1767.0	1.3	-6.6	7.0	42.5	281.5	11.1	0.845	133.5E
FEB 21	8	0	48.3	25 43 54.4	405.5	3244.4	1768.2	0.1	-6.7	11.6	54.6	288.7	12.1	0.906	144.3E
FEB 22	8	51	18.8	22 45 6.4	404.4	3253.5	1773.2	-1.2	-6.5	15.4	66.8	296.4	13.1	0.954	155.1E
FEB 23	9	39	46.0	18 47 9.5	402.5	3268.3	1781.3	-2.3	-6.0	18.4	78.9	307.4	14.1	0.985	165.8E
FEB 24	10	26	18.8	14 1 6.5	400.2	3287.7	1791.8	-3.3	-5.2	20.5	91.1	351.2	15.1	0.998	175.4E
FEB 25	11	11	26.4	8 38 42.7	397.4	3310.5	1804.2	-4.2	-4.2	21.7	103.2	93.7	16.1	0.993	170.5W
FEB 26	11	55	52.4	2 52 2.4	394.4	3336.2	1818.2	-4.9	-3.0	22.1	115.3	107.5	17.1	0.968	159.5W
FEB 27	12	40	30.4	-3 -6-24.8	391.1	3364.3	1833.5	-5.5	-1.6	21.6	127.5	111.2	18.1	0.924	147.9W
FEB 28	13	26	21.2	-9 -3-16.3	387.6	3394.5	1850.0	-5.9	-0.1	20.2	139.6	111.7	19.1	0.861	136.2W
MAR 1	14	14	29.3	-14-43-32.2	383.9	3426.8	1867.6	-6.1	1.4	17.8	151.8	110.1	20.1	0.782	124.1W
MAR 2	15	5	57.1	-19-49-44.5	380.1	3461.0	1886.2	-6.1	2.9	14.5	164.0	106.8	21.1	0.688	111.9W
MAR 3	16	1	32.2	-24 -1-30.6	376.3	3496.3	1905.5	-5.7	4.2	10.1	176.1	101.9	22.1	0.583	99.4W
MAR 4	17	1	25.6	-26-56-24.7	372.5	3531.6	1924.7	-5.1	5.3	4.8	188.3	95.5	23.1	0.471	86.6W
MAR 5	18	4	48.5	-28-13-15.6	369.1	3564.8	1942.8	-4.1	6.2	358.9	200.5	88.1	24.1	0.359	73.5W
MAR 6	19	9	47.1	-27-37-53.0	366.2	3593.1	1958.2	-2.9	6.6	352.9	212.7	80.2	25.1	0.252	60.2W
MAR 7	20	13	57.3	-25 -8-43.3	364.1	3613.2	1969.2	-1.4	<						

Date (0 DT)	RA {Mean}			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong	
	(h	m	s)					l	b	c						
APR 1	17	49	53.6	-28-12	0.0	372.2	3535.2	1926.7	-3.2	6.1	0.3	169.4	92.2	21.6	0.618	103.5W
APR 2	18	53	43.2	-28-3	-56.6	370.5	3551.3	1935.4	-2.2	6.7	354.4	181.6	84.7	22.6	0.505	90.5W
APR 3	19	56	49.3	-26-5	-44.7	369.2	3563.1	1941.9	-1.1	6.8	348.8	193.8	77.6	23.6	0.391	77.3W
APR 4	20	57	22.0	-22-27	-41.4	368.6	3569.6	1945.4	0.0	6.5	344.2	206.0	71.3	24.6	0.282	64.0W
APR 5	21	54	28.5	-17-28	-58.3	368.6	3569.3	1945.2	1.2	5.8	340.9	218.2	66.4	25.6	0.184	50.7W
APR 6	22	48	14.5	-11-32	-59.4	369.5	3560.9	1940.7	2.4	4.7	338.8	230.4	62.9	26.6	0.103	37.4W
APR 7	23	39	24.2	-5-3	-48.2	371.3	3543.6	1931.3	3.4	3.3	338.0	242.6	60.8	27.6	0.044	24.1W
APR 8	0	28	59.3	1-35	42.0	374.0	3517.5	1917.0	4.2	1.8	338.2	254.8	59.5	28.6	0.009	11.1W
APR 9	1	18	4.3	8-4	26.6	377.6	3483.8	1898.7	4.8	0.2	339.5	267.1	52.9	0.1	0.000	1.8E
APR 10	2	7	37.1	14-3	21.8	381.9	3444.7	1877.4	5.0	-1.4	341.8	279.3	246.0	1.1	0.016	14.4E
APR 11	2	58	21.9	19-15	31.7	386.6	3403.1	1854.7	5.0	-2.9	344.9	291.5	249.1	2.1	0.053	26.6E
APR 12	3	50	41.8	23-26	27.2	391.3	3362.0	1832.3	4.7	-4.2	348.9	303.7	253.6	3.1	0.109	38.5E
APR 13	4	44	31.4	26-24	44.9	395.7	3324.6	1811.9	4.0	-5.3	353.6	316.0	259.2	4.1	0.180	50.1E
APR 14	5	39	15.7	28-3	3.4	399.5	3293.5	1794.9	3.2	-6.1	358.6	328.2	265.4	5.1	0.261	61.4E
APR 15	6	33	57.5	28-18	53.5	402.3	3270.6	1782.5	2.1	-6.6	3.8	340.4	271.8	6.1	0.350	72.4E
APR 16	7	27	34.8	27-14	44.1	403.9	3257.3	1775.2	0.9	-6.9	8.7	352.6	278.0	7.1	0.444	83.4E
APR 17	8	19	19.9	24-57	7.1	404.3	3254.3	1773.6	-0.4	-6.8	13.0	4.8	283.6	8.1	0.538	94.2E
APR 18	9	8	51.7	21-35	1.9	403.3	3261.9	1777.7	-1.6	-6.4	16.5	17.0	288.4	9.1	0.632	105.1E
APR 19	9	56	16.4	17-18	26.2	401.2	3279.3	1787.2	-2.8	-5.8	19.2	29.2	292.2	10.1	0.721	116.1E
APR 20	10	42	2.7	12-17	26.8	398.0	3305.5	1801.5	-3.8	-4.9	21.0	41.4	294.9	11.1	0.804	127.3E
APR 21	11	26	54.7	6-42	17.3	394.0	3338.8	1819.7	-4.6	-3.8	21.9	53.5	296.5	12.1	0.876	138.7E
APR 22	12	11	46.6	0-43	53.6	389.6	3376.9	1840.4	-5.1	-2.4	22.0	65.7	296.7	13.1	0.935	150.4E
APR 23	12	57	39.8	-5-25	-8.4	385.0	3417.1	1862.3	-5.4	-0.9	21.1	77.9	294.8	14.1	0.977	162.4E
APR 24	13	45	39.3	-11-29	-28.5	380.6	3456.4	1883.7	-5.3	0.7	19.3	90.1	285.1	15.1	0.998	174.7E
APR 25	14	36	48.7	-17-10	-10.3	376.8	3492.0	1903.2	-5.0	2.2	16.5	102.2	121.4	16.1	0.996	172.5W
APR 26	15	31	58.1	-22-4	-34.4	373.6	3521.7	1919.3	-4.3	3.7	12.6	114.4	111.7	17.1	0.969	159.6W
APR 27	16	31	22.9	-25-47	-44.9	371.2	3543.9	1931.4	-3.5	5.0	7.6	126.6	104.5	18.1	0.917	146.5W
APR 28	17	34	19.4	-27-56	-24.1	369.8	3558.1	1939.2	-2.4	6.0	1.8	138.8	96.9	19.1	0.844	133.3W
APR 29	18	38	57.3	-28-14	-52.5	369.1	3564.6	1942.7	-1.3	6.6	355.8	150.9	89.1	20.1	0.751	120.0W
APR 30	19	42	50.6	-26-40	-23.2	369.1	3564.2	1942.5	-0.1	6.8	350.0	163.1	81.6	21.1	0.645	106.8W
MAY 1	20	43	55.5	-23-23	-42.6	369.8	3557.9	1939.1	1.0	6.5	345.2	175.3	75.1	22.1	0.532	93.5W
MAY 2	21	41	11.6	-18-44	-48.9	370.9	3546.9	1933.1	2.1	5.9	341.6	187.5	70.1	23.1	0.418	80.4W
MAY 3	22	34	43.8	-13-7	-3.4	372.5	3531.7	1924.7	3.0	4.9	339.3	199.8	66.6	24.1	0.308	67.3W
MAY 4	23	25	19.3	-6-53	-14.4	374.6	3512.5	1914.3	3.7	3.7	338.1	212.0	64.7	25.1	0.209	54.4W
MAY 5	0	14	4.5	0-24	-11.3	377.0	3489.6	1901.9	4.2	2.2	338.1	224.2	64.6	26.1	0.126	41.6W
MAY 6	1	2	8.8	6-1	8.6	379.9	3463.1	1887.4	4.6	0.7	339.0	236.4	66.5	27.1	0.063	28.9W
MAY 7	1	50	36.7	12-5	6.6	383.2	3433.4	1871.2	4.7	-0.9	340.9	248.7	71.6	28.1	0.021	16.6W
MAY 8	2	40	20.2	17-30	59.6	386.8	3401.4	1853.8	4.6	-2.4	343.7	260.9	94.8	29.1	0.002	4.8W
MAY 9	3	31	51.9	22-3	9.1	390.6	3368.4	1835.8	4.4	-3.8	347.4	273.1	235.4	0.6	0.005	8.1E
MAY 10	4	25	16.0	25-27	52.5	394.4	3336.1	1818.2	3.8	-4.9	351.8	285.4	250.2	1.6	0.029	19.6E
MAY 11	5	20	3.3	27-34	52.4	397.9	3306.5	1802.0	3.1	-5.8	356.8	297.6	258.6	2.6	0.072	31.0E
MAY 12	6	15	14.8	28-18	53.7	400.9	3281.6	1788.5	2.2	-6.4	2.0	309.9	266.1	3.6	0.130	42.2E
MAY 13	7	9	39.0	27-40	35.0	403.2	3263.4	1778.5	1.1	-6.7	7.0	322.1	273.0	4.6	0.202	53.3E
MAY 14	8	2	14.4	25-45	52.5	404.4	3253.3	1773.1	-0.1	-6.8	11.5	334.3	279.2	5.6	0.283	64.2E
MAY 15	8	52	27.1	22-44	8.5	404.5	3252.6	1772.7	-1.4	-6.5	15.4	346.5	284.5	6.6	0.372	75.0E
MAY 16	9	40	15.0	18-46	3.9	403.3	3262.1	1777.8	-2.6	-5.9	18.3	358.8	288.8	7.6	0.466	85.9E
MAY 17	10	26	3.3	14-2	9.1	400.9	3281.8	1788.6	-3.8	-5.1	20.4	11.0	291.9	8.6	0.561	96.9E
MAY 18	11	10	35.4	8-42	16.4	397.3	3311.4	1804.7	-4.9	-4.1	21.6	23.2	293.9	9.6	0.656	108.1E
MAY 19	11	54	47.0	2-56	4.7	392.8	3349.6	1825.5	-5.7	-2.8	22.0	35.4	294.7	10.6	0.747	119.5E
MAY 20	12	39	42.1	-3-5	-57.2	387.6	3394.4	1849.9	-6.2	-1.4	21.6	47.6	294.0	11.6	0.830	131.2E
MAY 21	13	26	30.6	-9-11	-4.0	382.1	3442.9	1876.4	-6.3	0.1	20.2	59.8	291.6	12.6	0.902	143.4E
MAY 22	14	16	24.8	-15-2	-41.2	376.8	3491.5	1902.9	-6.0	1.7	17.8	71.9	286.3	13.6	0.956	155.8E
MAY 23	15	10	29.9	-20-19	-16.2	372.1	3536.1	1927.2	-5.4	3.2	14.2	84.1	273.3	14.6	0.990	168.5E
MAY 24	16	9	23.7	-24-34	-34.7	368.2	3572.8	1947.2	-4.3	4.5	9.5	96.3	160.2	15.6	0.999	175.9W
MAY 25	17	12	45.3	-27-20	-55.2	365.6	3598.3	1961.0	-3.0	5.6	3.9	108.5	109.8	16.6	0.980	163.8W
MAY 26	18	18	52.9	-28-16	-4.0	364.4	3610.8	1967.9	-1.5	6.3	357.7	120.7	96.8	17.6	0.935	150.3W
MAY 27	19	25	2.1	-27-11	-21.4	364.4	3610.1	1967.5	0.1	6.6	351.6	132.9	87.1	18.6	0.864	136.7W
MAY 28	20	28	32.3	-24-15	-12.7	365.7	3597.9	1960.8	1.6	6.5	346.4	145.1	79.3	19.6	0.774	123.1W
MAY 29	21	27	50.2	-19-49	-2.9	367.9	3576.4	1949.1	3.0	5.9	342.4	157.3	73.3	20.6	0.669	109.6W
MAY 30	22	22	44.2	-14-19	-21.1	370.7	3548.6	1934.0	4.0	5.0	339.7	169.5	69.1	21.6	0.557	96.4W
MAY 31	23	13	58.9	-8-11	-30.8	374.1	3517.2	1916.9	4.8	3.8	338.3	181.7	66.7	22.6	0.444	83.4W
JUN 1	0	2	45.1	-1-47	-22.1	377.6	3484.2	1898.9	5.3	2.4	338.0	193.9	65.9	23.6	0.336	70.7W
JUN 2	0	50	19.1	4-34	40.2	381.2	3451.1	1880.8	5.6	0.9	338.7	206.1	66.7	24.6	0.238	58.2W
JUN 3	1	37	52.5	10-38	28.4	384.8	3418.6	1863.26.								

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)							l	b	c					
JUL 1	2 15 0.5			15 7 16.4	387.8	3392.5	1848.9	6.6	-2.0	342.1	200.5	71.4	24.1	0.272	62.7W
JUL 2	3 4 34.4			19 58 32.1	392.0	3356.2	1829.1	6.2	-3.3	345.3	212.8	76.0	25.1	0.186	50.9W
JUL 3	3 55 59.3			23 51 24.8	395.7	3324.7	1811.9	5.5	-4.5	349.3	225.0	82.3	26.1	0.114	39.5W
JUL 4	4 49 14.1			26 34 47.2	398.9	3298.0	1797.4	4.7	-5.4	353.9	237.3	90.7	27.1	0.060	28.2W
JUL 5	5 43 42.5			28 0 18.2	401.6	3276.1	1785.5	3.7	-6.1	359.0	249.5	103.4	28.1	0.023	17.3W
JUL 6	6 38 20.1			28 4 14.5	403.7	3258.9	1776.1	2.6	-6.5	4.1	261.8	135.2	29.1	0.004	7.4W
JUL 7	7 31 53.5			26 48 36.9	405.3	3246.5	1769.3	1.5	-6.6	8.9	274.0	236.8	0.5	0.004	7.4E
JUL 8	8 23 23.6			24 20 42.7	406.2	3239.3	1765.4	0.3	-6.4	13.1	286.3	267.5	1.5	0.022	17.1E
JUL 9	9 12 21.2			20 51 15.5	406.3	3237.8	1764.6	-1.0	-5.9	16.6	298.5	278.7	2.5	0.057	27.7E
JUL 10	9 58 49.2			16 32 13.8	405.7	3242.9	1767.4	-2.4	-5.2	19.2	310.8	285.1	3.5	0.109	38.4E
JUL 11	10 43 15.8			11 35 15.5	404.1	3255.4	1774.2	-3.7	-4.3	20.9	323.0	289.3	4.5	0.174	49.2E
JUL 12	11 26 26.6			6 10 58.2	401.6	3276.1	1785.5	-4.9	-3.1	21.8	335.2	291.8	5.5	0.252	60.1E
JUL 13	12 9 18.4			0 29 10.5	398.0	3305.5	1801.5	-6.1	-1.8	21.9	347.5	293.0	6.5	0.340	71.2E
JUL 14	12 52 55.9			-5-20-18.2	393.5	3343.7	1822.3	-7.0	-0.4	21.2	359.7	292.7	7.5	0.437	82.6E
JUL 15	13 38 30.8			-11 -6-19.6	388.1	3390.1	1847.6	-7.6	1.0	19.7	11.9	291.1	8.5	0.538	94.2E
JUL 16	14 27 19.0			-16-34-46.5	382.1	3443.2	1876.5	-7.8	2.4	17.1	24.1	288.0	9.5	0.641	106.3E
JUL 17	15 20 33.1			-21-26-52.7	375.9	3500.3	1907.7	-7.5	3.8	13.5	36.3	283.2	10.5	0.741	118.8E
JUL 18	16 19 2.1			-25-18-25.2	369.8	3557.5	1938.9	-6.7	5.0	8.8	48.5	276.4	11.5	0.833	131.7E
JUL 19	17 22 38.3			-27-41-40.0	364.5	3609.7	1967.3	-5.5	5.9	3.0	60.7	267.2	12.5	0.910	145.0E
JUL 20	18 29 46.4			-28-11-50.1	360.3	3651.2	1989.9	-3.7	6.4	356.7	72.9	254.3	13.5	0.966	158.6E
JUL 21	19 37 34.1			-26-36-48.6	357.8	3676.9	2003.9	-1.7	6.5	350.6	85.1	223.5	14.5	0.995	171.7E
JUL 22	20 43 1.6			-23 -3-40.7	357.2	3683.4	2007.4	0.5	6.1	345.4	97.3	105.9	15.5	0.994	170.9W
JUL 23	21 44 17.5			-17-56-21.3	358.5	3670.0	2000.1	2.6	5.3	341.6	109.5	80.7	16.5	0.962	157.6W
JUL 24	22 41 1.6			-11-46-44.5	361.5	3638.9	1983.2	4.4	4.2	339.1	121.7	72.3	17.5	0.904	143.7W
JUL 25	23 33 57.8			-5 -6-17.9	366.0	3594.6	1959.0	5.9	2.7	338.1	133.9	68.5	18.5	0.823	130.1W
JUL 26	0 24 19.3			1 38 18.5	371.4	3542.3	1930.5	6.9	1.2	338.2	146.1	67.2	19.5	0.727	116.9W
JUL 27	1 13 24.2			8 5 58.7	377.3	3487.3	1900.6	7.5	-0.4	339.3	158.3	67.7	20.5	0.623	104.1W
JUL 28	2 2 23.9			14 0 5.9	383.1	3433.9	1871.5	7.6	-1.9	341.4	170.5	69.9	21.5	0.516	91.7W
JUL 29	2 52 15.4			19 7 1.2	388.7	3385.1	1844.9	7.4	-3.3	344.4	182.7	73.5	22.5	0.412	79.7W
JUL 30	3 43 35.4			23 14 56.7	393.6	3342.7	1821.8	6.8	-4.5	348.2	195.0	78.5	23.5	0.314	68.0W
JUL 31	4 36 32.4			26 13 41.5	397.8	3307.7	1802.7	6.0	-5.4	352.7	207.2	84.6	24.5	0.226	56.7W
AUG 1	5 30 42.2			27 55 28.3	401.1	3280.0	1787.6	5.1	-6.1	357.7	219.4	91.7	25.5	0.150	45.5W
AUG 2	6 25 11.6			28 16 16.7	403.6	3259.5	1776.4	4.0	-6.5	2.8	231.7	99.7	26.5	0.089	34.6W
AUG 3	7 18 53.5			27 17 2.6	405.4	3245.6	1768.9	2.8	-6.6	7.7	243.9	109.3	27.5	0.043	23.8W
AUG 4	8 10 47.8			25 3 41.6	406.3	3237.7	1764.6	1.5	-6.4	12.1	256.2	123.8	28.5	0.013	13.2W
AUG 5	9 0 19.0			21 45 55.2	406.6	3235.5	1763.3	0.2	-6.0	15.8	268.4	179.2	29.5	0.002	4.8W
AUG 6	9 47 21.1			17 35 22.5	406.2	3238.7	1765.1	-1.1	-5.3	18.6	280.6	266.8	0.9	0.008	10.3E
AUG 7	10 32 14.1			12 44 4.5	405.1	3247.4	1769.8	-2.4	-4.3	20.5	292.9	282.9	1.9	0.032	20.6E
AUG 8	11 15 36.1			7 23 30.0	403.3	3261.8	1777.7	-3.7	-3.2	21.7	305.1	289.0	2.9	0.074	31.4E
AUG 9	11 58 16.9			1 44 24.9	400.8	3282.5	1789.0	-4.8	-1.9	22.0	317.4	291.9	3.9	0.131	42.4E
AUG 10	12 41 14.6			-4 -2-44.1	397.5	3309.9	1803.9	-5.9	-0.5	21.5	329.6	292.8	4.9	0.204	53.6E
AUG 11	13 25 33.4			-9-46-59.4	393.4	3344.3	1822.7	-6.8	0.9	20.2	341.8	292.1	5.9	0.290	65.0E
AUG 12	14 12 22.4			-15-15-41.6	388.6	3385.7	1845.2	-7.3	2.3	18.0	354.1	289.9	6.9	0.386	76.6E
AUG 13	15 2 50.5			-20-13 -7.4	383.2	3433.3	1871.1	-7.6	3.7	14.8	6.3	286.2	7.9	0.489	88.6E
AUG 14	15 57 54.3			-24-19-25.5	377.5	3485.4	1899.5	-7.4	4.8	10.6	18.5	280.9	8.9	0.597	101.0E
AUG 15	16 57 54.6			-27-10-55.8	371.7	3539.3	1928.9	-6.7	5.8	5.3	30.7	274.1	9.9	0.703	113.8E
AUG 16	18 2 6.2			-28-23-29.5	366.4	3590.8	1957.0	-5.6	6.4	359.4	42.9	266.0	10.9	0.802	127.1E
AUG 17	19 8 27.5			-27-39-26.5	361.9	3635.0	1981.1	-4.0	6.6	353.2	55.1	257.0	11.9	0.887	140.7E
AUG 18	20 14 14.8			-24-55-14.7	358.8	3666.4	1998.2	-2.1	6.4	347.6	67.3	246.8	12.9	0.952	154.6E
AUG 19	21 17 11.3			-20-24-19.5	357.4	3680.7	2006.0	0.0	5.7	343.1	79.5	230.2	13.9	0.990	168.5E
AUG 20	22 16 14.7			-14-32-55.3	358.0	3675.4	2003.1	2.0	4.6	340.1	91.6	113.4	14.9	0.998	174.9W
AUG 21	23 11 35.1			-7-52-35.6	360.4	3650.9	1989.7	4.0	3.2	338.4	103.8	74.8	15.9	0.976	162.1W
AUG 22	0 4 7.1			0-54 -0.4	364.4	3610.2	1967.6	5.5	1.6	338.0	116.0	68.6	16.9	0.926	148.4W
AUG 23	0 55 1.5			5 56 20.2	369.7	3558.5	1939.4	6.7	-0.1	338.8	128.2	67.2	17.9	0.854	135.0W
AUG 24	1 45 28.2			12 16 53.7	375.8	3501.3	1908.2	7.4	-1.7	340.6	140.4	68.3	18.9	0.766	122.0W
AUG 25	2 36 25.7			17 50 31.5	382.0	3443.8	1876.9	7.6	-3.1	343.4	152.6	71.1	19.9	0.668	109.6W
AUG 26	3 28 33.3			22 23 34.5	388.1	3390.2	1847.6	7.5	-4.4	347.0	164.8	75.4	20.9	0.566	97.5W
AUG 27	4 22 3.4			25 45 19.7	393.5	3343.3	1822.1	7.0	-5.4	351.4	177.0	80.8	21.9	0.465	85.8W
AUG 28	5 16 37.5			27 48 12.0	398.1	3304.8	1801.1	6.2	-6.2	356.3	189.2	87.0	22.9	0.367	74.5W
AUG 29	6 11 28.6			28 28 31.0	401.7	3275.4	1785.1	5.2	-6.6	1.5	201.4	93.7	23.9	0.277	63.3W
AUG 30	7 5 34.7			27 47 13.7	404.2	3255.0	1774.0	4.0	-6.7	6.5	213.6	100.5	24.9	0.196	52.4W
AUG 31	7 57 58.4			25 49 50.5	405.7	3243.1	1767.5	2.8	-6.6	11.0	225.9	107.1	25.9	0.126	41.5W
SEP 1	8 48 3.4			22 45 22.5	406.2	3238.8	1765.2	1.5	-6.2	14.9	238.1	113.5	26.9	0.071	30.7W
SEP 2	9 35 41.1			18 44 50.2	405.9	3241.3	1766.5	0.2	-5.5	17.9	250.3	120.5	27.9	0.030	19.9W
SEP 3	10 21 7.6			13 59 53.8	404.9	3249.6	1771.1	-1.1	-4.6	20.1	262.6	133.1	28.9	0.007	9.3W
SEP 4	11 4 56.9			8 42 6.9	403.2	3263.0	1778.3	-2.3	-3.4	21.4	274.8	245.6	0.2	0.001	3.5E
SEP 5	11 47 54.8			3 2 45.4	401.0	3280.9	1788.1	-3.5	-2.1	22.0	287.0	286.8	1.2	0.014	13.6E
SEP 6	12 30 54.3			-2-46-58.0	398.3	3303.0	1800.2	-4.5	-0.7	21.7	299.3	292.1	2.2	0.046	24.7E
SEP 7	13 14 53.8			-8-35-21.1	395.2	3329.4	1814.5	-5.4	0.7	20.6	311.5	293.0	3.2	0.096	36.1E
SEP 8	14 0 55.3			-14 -9-26.6	391.6	3359.9	1831.2	-6.1	2.2	18.6	323.7	291.7	4.2	0.164	47.6E
SEP 9	14 50 0.1			-19-14 -9.7	387.5	3394.8	1850.2	-6.5	3.5	15.7	336.0	288.7	5.2	0.247	59.4E
SEP 10	15 43 0.4			-23-31-36.7	383.2	3433.7	1871.4	-6.7	4.7	11.8	348.2	284.2	6.2	0.343	71.5E
SEP 11	16 40 21.6			-26-41-14.8	378.5	3475.8	1894.3	-6.5	5.7	7.0	0.4	278.3	7.2	0.448	83.9E
SEP 12	17 41 39.8			-28-21-56.0	373.8	3519.6	1918.2	-5.9	6.4	1.3	12.6	271.3	8.2	0.559	96.6E
SEP 13	18 45 28.4			-28-16-31.6	369.3	3562.4	1941.5	-4.9	6.7	355.3	24.8	263.6	9.2	0.669	109.6E
SEP 14	19 49 36.2			-26-17-38.5	365.4	3600.8	1962.4	-3.6	6.6	349.7	37.0	256.0	10.2	0.773	123.

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (")	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
OCT 1	10	52	46.2	10 15 57.8	402.6	3267.6	1780.8	-1.5	-3.8	21.1	244.2	118.0	27.2	0.057	27.5W
OCT 2	11	36	4.4	4 38 56.2	400.2	3287.1	1791.5	-2.6	-2.5	21.9	256.4	119.8	28.2	0.020	16.3W
OCT 3	12	19	17.7	-1-12-50.9	397.4	3310.7	1804.4	-3.6	-1.1	21.8	268.6	122.5	29.2	0.002	5.0W
OCT 4	13	3	23.3	-7 -7 -26.5	394.2	3337.2	1818.8	-4.3	0.4	21.0	280.8	295.5	0.6	0.003	6.5E
OCT 5	13	49	20.9	-12-51-17.1	390.9	3365.5	1834.2	-4.9	1.9	19.2	293.0	295.2	1.6	0.025	18.2E
OCT 6	14	38	8.3	-18 -8 -35.1	387.6	3394.8	1850.1	-5.3	3.3	16.5	305.3	292.4	2.6	0.068	30.1E
OCT 7	15	30	33.7	-22-41 -1.0	384.2	3424.6	1866.4	-5.4	4.6	12.8	317.5	287.9	3.6	0.130	42.2E
OCT 8	16	26	59.4	-26 -8 -17.2	380.8	3454.8	1882.9	-5.3	5.6	8.2	329.7	282.2	4.6	0.210	54.5E
OCT 9	17	27	3.0	-28-10-18.0	377.5	3485.0	1899.3	-4.9	6.4	2.7	341.9	275.4	5.6	0.306	67.0E
OCT 10	18	29	26.0	-28-31-10.0	374.3	3514.7	1915.5	-4.3	6.7	356.9	354.1	268.0	6.6	0.412	79.7E
OCT 11	19	32	9.9	-27 -3 -49.7	371.4	3542.7	1930.8	-3.4	6.7	351.2	6.3	260.8	7.6	0.525	92.7E
OCT 12	20	33	18.5	-23-52-33.7	368.8	3567.5	1944.3	-2.3	6.3	346.2	18.5	254.3	8.6	0.638	105.9E
OCT 13	21	31	39.8	-19-11-46.4	366.8	3586.9	1954.8	-1.1	5.5	342.3	30.6	249.0	9.6	0.745	119.2E
OCT 14	22	26	60.0	-13-22-21.2	365.6	3598.2	1961.0	0.2	4.4	339.7	42.8	245.4	10.6	0.840	132.7E
OCT 15	23	19	51.2	-6 -48 -7.0	365.6	3599.1	1961.5	1.6	2.9	338.3	55.0	243.5	11.6	0.916	146.3E
OCT 16	0	11	11.3	0 6 24.8	366.7	3588.0	1955.4	2.9	1.3	338.1	67.1	243.8	12.6	0.970	159.9E
OCT 17	1	2	6.5	6 57 8.3	369.1	3564.7	1942.7	4.0	-0.4	339.0	79.3	250.1	13.6	0.997	173.3E
OCT 18	1	53	39.1	13 21 4.6	372.7	3530.5	1924.1	4.9	-2.1	341.0	91.4	55.7	14.6	0.997	173.4W
OCT 19	2	46	36.5	18 57 4.7	377.2	3488.2	1901.1	5.6	-3.6	344.0	103.6	64.9	15.6	0.972	160.5W
OCT 20	3	41	20.8	23 26 51.3	382.3	3441.5	1875.6	5.9	-4.9	348.0	115.7	70.9	16.6	0.925	148.0W
OCT 21	4	37	38.7	26 36 22.7	387.6	3394.2	1849.9	5.9	-5.8	352.7	127.9	77.3	17.6	0.860	135.9W
OCT 22	5	34	40.0	28 17 29.3	392.7	3350.1	1825.8	5.5	-6.5	358.0	140.0	84.1	18.6	0.781	124.1W
OCT 23	6	31	10.1	28 28 56.2	397.2	3312.2	1805.1	4.8	-6.8	3.3	152.2	90.9	19.6	0.694	112.7W
OCT 24	7	25	54.6	27 16 1.0	400.8	3282.6	1789.0	3.9	-6.8	8.2	164.4	97.3	20.6	0.601	101.6W
OCT 25	8	18	2.7	24 48 39.5	403.2	3262.8	1778.2	2.8	-6.5	12.6	176.6	103.0	21.6	0.506	90.6W
OCT 26	9	7	18.3	21 18 51.0	404.4	3253.4	1773.1	1.5	-5.9	16.1	188.7	107.8	22.6	0.412	79.7W
OCT 27	9	53	56.1	16 58 36.6	404.3	3254.4	1773.6	0.2	-5.1	18.8	200.9	111.4	23.6	0.321	68.9W
OCT 28	10	38	32.5	11 59 1.9	402.9	3265.2	1779.5	-1.1	-4.1	20.7	213.1	113.9	24.6	0.236	58.0W
OCT 29	11	21	56.9	6 30 19.5	400.5	3284.6	1790.1	-2.3	-2.9	21.7	225.3	115.2	25.6	0.160	47.0W
OCT 30	12	5	5.5	0 42 31.1	397.3	3311.1	1804.5	-3.3	-1.5	21.9	237.5	115.0	26.6	0.095	35.8W
OCT 31	12	48	59.2	-5 -13 -32.4	393.6	3342.5	1821.7	-4.1	0.0	21.3	249.7	112.9	27.6	0.045	24.4W
NOV 1	13	34	41.2	-11 -5 -3.9	389.6	3376.7	1840.3	-4.7	1.5	19.9	261.9	106.4	28.6	0.012	12.7W
NOV 2	14	23	13.6	-16 -36 -21.0	385.7	3411.3	1859.2	-4.9	2.9	17.4	274.1	36.6	29.6	0.000	2.4W
NOV 3	15	15	29.6	-21 -28 -15.3	382.0	3444.3	1877.1	-4.9	4.2	14.0	286.3	300.8	0.9	0.011	12.0E
NOV 4	16	11	56.6	-25 -18 -48.8	378.7	3473.9	1893.3	-4.5	5.3	9.5	298.5	289.6	1.9	0.045	24.4E
NOV 5	17	12	14.7	-27 -45 -46.4	376.0	3499.2	1907.0	-4.0	6.2	4.1	310.7	281.1	2.9	0.101	37.0E
NOV 6	18	15	2.4	-28 -31 -21.4	373.8	3519.6	1918.2	-3.2	6.6	358.3	322.9	272.8	3.9	0.178	49.8E
NOV 7	19	18	11.4	-27 -27 -38.6	372.1	3535.3	1926.7	-2.3	6.7	352.5	335.1	265.0	4.9	0.272	62.8E
NOV 8	20	19	33.7	-24 -39 -12.7	371.0	3546.5	1932.8	-1.3	6.4	347.3	347.3	258.0	5.9	0.379	75.8E
NOV 9	21	17	48.8	-20 -21 -8.4	370.3	3553.3	1936.5	-0.3	5.6	343.2	359.5	252.4	6.9	0.492	88.9E
NOV 10	22	12	40.2	-14 -54 -13.9	370.0	3555.7	1937.9	0.7	4.6	340.3	11.7	248.4	7.9	0.606	102.1E
NOV 11	23	4	41.2	-8 -40 -48.1	370.3	3553.3	1936.5	1.6	3.2	338.6	23.8	246.1	8.9	0.714	115.2E
NOV 12	23	54	52.9	-2 -2 -36.6	371.1	3545.2	1932.1	2.5	1.7	338.0	36.0	245.5	9.9	0.811	128.3E
NOV 13	0	44	26.4	4 39 28.7	372.6	3530.8	1924.3	3.3	0.1	338.6	48.1	246.9	10.9	0.891	141.3E
NOV 14	1	34	30.7	11 5 8.5	374.9	3509.6	1912.7	4.0	-1.6	340.1	60.3	251.0	11.9	0.950	154.2E
NOV 15	2	26	4.0	16 54 21.7	377.8	3481.9	1897.7	4.5	-3.1	342.7	72.4	261.2	12.9	0.987	166.8E
NOV 16	3	19	42.7	21 47 52.8	381.5	3448.8	1879.6	4.9	-4.4	346.3	84.5	336.5	13.9	0.999	176.6E
NOV 17	4	15	29.3	25 28 37.0	385.6	3412.1	1859.6	5.0	-5.4	350.8	96.7	60.8	14.9	0.988	167.5W
NOV 18	5	12	44.2	27 43 59.3	389.9	3374.1	1838.9	4.9	-6.2	355.9	108.8	74.7	15.9	0.956	155.8W
NOV 19	6	10	10.8	28 28 18.5	394.2	3337.7	1819.0	4.4	-6.6	1.2	121.0	84.0	16.9	0.906	144.2W
NOV 20	7	6	19.7	27 43 51.0	398.0	3305.3	1801.4	3.7	-6.7	6.4	133.1	91.8	17.9	0.841	132.9W
NOV 21	7	59	58.6	25 39 35.3	401.2	3279.4	1787.3	2.8	-6.5	11.1	145.2	98.4	18.9	0.764	121.7W
NOV 22	8	50	32.8	22 28 15.1	403.3	3261.8	1777.7	1.7	-6.0	14.9	157.4	103.9	19.9	0.679	110.8W
NOV 23	9	38	5.7	18 23 17.7	404.3	3253.9	1773.4	0.4	-5.3	18.0	169.6	108.2	20.9	0.588	100.0W
NOV 24	10	23	9.8	13 37 0.8	404.0	3256.4	1774.8	-1.0	-4.3	20.1	181.7	111.4	21.9	0.494	89.2W
NOV 25	11	6	34.4	8 20 3.0	402.4	3269.5	1781.9	-2.3	-3.1	21.4	193.9	113.3	22.9	0.400	78.3W
NOV 26	11	49	18.3	2 41 52.6	399.6	3292.7	1794.5	-3.5	-1.8	21.9	206.1	114.0	23.9	0.309	67.4W
NOV 27	12	32	25.8	-3 -8 -7.2	395.7	3324.7	1812.0	-4.5	-0.4	21.6	218.3	113.4	24.9	0.222	56.2W
NOV 28	13	17	4.9	-8 -59 -15.3	391.1	3363.7	1833.2	-5.2	1.0	20.5	230.4	111.3	25.9	0.145	44.7W
NOV 29	14	4	25.8	-14 -38 -1.8	386.2	3407.1	1856.8	-5.6	2.5	18.5	242.6	107.0	26.9	0.081	32.9W
NOV 30	14	55	34.1	-19 -46 -49.9	381.2	3451.5	1881.0	-5.6	3.8	15.4	254.8	99.0	27.9	0.033	20.8W
DEC 1	15	51	16.3	-24 -3 -30.1	376.6	3493.4	1903.9	-5.2	5.0	11.3	267.0	77.1	28.9	0.006	8.9W
DEC 2	16	51	34.7	-27 -3 -1.9	372.8	3529.5	1923.6	-4.4	5.9	6.1	279.2	319.5	0.4	0.003	6.6E
DEC 3	17	55	21.5	-28 -22 -29.1	369.9	3557.0	1938.6	-3.3	6.4	0.1	291.4	285.3	1.4	0.027	18.7E
DEC 4	19	0	20.3	-27 -48 -17.5	368.1	3574.3	1948.0	-2.1	6.6	354.1	303.6	272.2			

Date (0 DT)	RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (*)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h	m	s)					l	b	c					
JAN 1	19	40	13.5	-26-22-32.0	362.5	3629.6	1978.2	-2.0	6.3	350.6	284.0	282.1	0.9	0.013	12.9E
JAN 2	20	43	39.6	-22-41-34.6	361.8	3636.9	1982.1	-0.2	5.7	345.6	296.2	263.8	1.9	0.052	26.2E
JAN 3	21	43	3.9	-17-33-6.3	362.6	3628.6	1977.6	1.5	4.7	341.8	308.4	255.1	2.9	0.117	39.8E
JAN 4	22	38	20.5	-11-26-8.5	364.8	3607.0	1965.8	3.0	3.4	339.4	320.5	250.0	3.9	0.203	53.4E
JAN 5	23	30	19.0	-4-48-50.4	368.0	3575.6	1948.7	4.2	1.9	338.2	332.7	247.4	4.9	0.304	66.8E
JAN 6	0	20	13.7	1 54 33.3	371.8	3538.3	1928.4	5.1	0.3	338.2	344.9	246.7	5.9	0.413	79.9E
JAN 7	1	9	23.7	8 23 53.2	376.0	3498.7	1906.8	5.7	-1.3	339.2	357.0	247.7	6.9	0.524	92.7E
JAN 8	1	59	1.3	14 21 56.6	380.3	3459.4	1885.4	6.0	-2.7	341.2	9.2	250.3	7.9	0.632	105.1E
JAN 9	2	50	4.3	19 33 11.5	384.4	3422.2	1865.1	6.1	-4.0	344.1	21.3	254.5	8.9	0.730	117.3E
JAN 10	3	43	6.7	23 43 10.3	388.3	3387.8	1846.4	5.9	-5.1	348.0	33.5	260.2	9.9	0.817	129.2E
JAN 11	4	38	7.8	26 39 1.4	391.9	3356.7	1829.4	5.5	-5.9	352.7	45.6	267.5	10.9	0.889	140.9E
JAN 12	5	34	26.4	28 11 15.0	395.2	3328.9	1814.2	5.0	-6.4	357.8	57.8	276.8	11.9	0.943	152.3E
JAN 13	6	30	47.9	28 15 57.1	398.2	3304.2	1800.8	4.3	-6.6	3.1	69.9	290.2	12.9	0.979	163.4E
JAN 14	7	25	47.5	26 56 7.3	400.8	3282.9	1789.2	3.5	-6.4	8.1	82.0	325.3	13.9	0.997	173.3E
JAN 15	8	18	18.4	24 20 57.3	402.9	3265.2	1779.6	2.4	-6.0	12.5	94.1	68.3	14.9	0.995	172.0W
JAN 16	9	7	49.1	20 43 27.2	404.6	3251.8	1772.3	1.3	-5.3	16.0	106.3	94.3	15.9	0.976	162.0W
JAN 17	9	54	24.0	16 17 41.9	405.6	3243.6	1767.8	0.0	-4.4	18.7	118.4	103.7	16.9	0.939	151.4W
JAN 18	10	38	34.0	11 16 56.7	405.9	3241.6	1766.7	-1.3	-3.3	20.6	130.5	108.9	17.9	0.887	140.7W
JAN 19	11	21	6.5	5 52 50.4	405.2	3246.9	1769.6	-2.8	-2.1	21.6	142.7	111.8	18.9	0.822	130.0W
JAN 20	12	2	57.9	0 15 33.1	403.5	3260.6	1777.0	-4.1	-0.8	21.9	154.8	113.1	19.9	0.745	119.2W
JAN 21	12	45	10.5	-5-25-29.7	400.7	3283.5	1789.5	-5.4	0.6	21.4	167.0	113.1	20.9	0.658	108.3W
JAN 22	13	28	51.3	-11 0-29.1	396.8	3316.0	1807.2	-6.5	2.0	20.1	179.1	111.8	21.9	0.564	97.2W
JAN 23	14	15	10.7	-16-17-47.5	391.8	3357.8	1830.0	-7.3	3.3	18.0	191.3	109.1	22.9	0.465	85.8W
JAN 24	15	5	18.3	-21 -2-27.1	386.1	3407.8	1857.2	-7.7	4.5	14.8	203.5	105.0	23.9	0.364	74.1W
JAN 25	16	0	9.2	-24-55-1.5	379.8	3463.7	1887.7	-7.7	5.5	10.6	215.6	99.2	24.9	0.266	62.0W
JAN 26	16	59	59.9	-27-32-1.9	373.6	3522.0	1919.5	-7.2	6.2	5.4	227.8	91.8	25.9	0.175	49.4W
JAN 27	18	3	59.2	-28-29-36.2	367.7	3577.8	1949.9	-6.1	6.6	359.4	240.0	82.7	26.9	0.098	36.3W
JAN 28	19	9	59.2	-27-30-47.9	362.9	3625.6	1976.0	-4.6	6.5	353.3	252.2	71.1	27.9	0.040	22.9W
JAN 29	20	15	15.6	-24-33-15.3	359.5	3659.9	1994.6	-2.8	6.0	347.8	264.4	48.6	28.9	0.007	9.6W
JAN 30	21	17	36.6	-19-51-32.3	357.9	3676.2	2003.5	-0.7	5.1	343.3	276.6	286.4	0.4	0.004	7.0E
JAN 31	22	16	7.0	-13-52-27.0	358.2	3672.9	2001.7	1.3	3.8	340.2	288.8	257.0	1.4	0.031	20.2E
FEB 1	23	11	3.4	-7 -7-23.5	360.4	3650.8	1989.7	3.2	2.3	338.5	301.0	249.7	2.4	0.086	34.0E
FEB 2	0	3	24.8	0 -6-23.5	364.1	3613.8	1969.5	4.7	0.6	338.1	313.1	247.0	3.4	0.164	47.7E
FEB 3	0	54	25.4	6 44 43.6	368.9	3566.8	1943.9	5.9	-1.1	338.8	325.3	246.8	4.4	0.260	61.1E
FEB 4	1	45	17.7	13 4 44.1	374.3	3515.0	1915.7	6.7	-2.6	340.5	337.5	248.5	5.4	0.364	74.1E
FEB 5	2	37	1.9	18 36 12.0	379.9	3463.1	1887.4	7.1	-4.0	343.3	349.7	251.9	6.4	0.472	86.7E
FEB 6	3	30	16.7	23 4 34.4	385.3	3414.3	1860.8	7.1	-5.1	347.0	1.8	256.6	7.4	0.578	98.8E
FEB 7	4	25	9.4	26 17 58.1	390.3	3370.9	1837.1	6.8	-6.0	351.5	14.0	262.5	8.4	0.678	110.7E
FEB 8	5	21	10.4	28 7 56.5	394.6	3333.8	1816.9	6.3	-6.5	356.5	26.1	269.3	9.4	0.767	122.2E
FEB 9	6	17	18.1	28 30 54.0	398.3	3303.3	1800.3	5.5	-6.7	1.8	38.3	276.6	10.4	0.845	133.5E
FEB 10	7	12	17.4	27 29 6.6	401.2	3279.1	1787.1	4.6	-6.6	6.9	50.4	284.3	11.4	0.908	144.6E
FEB 11	8	5	4.0	25 10 22.4	403.5	3260.9	1777.2	3.6	-6.2	11.4	62.6	292.5	12.4	0.955	155.6E
FEB 12	8	55	2.6	21 46 19.2	405.1	3248.1	1770.2	2.4	-5.5	15.1	74.7	303.6	13.4	0.986	166.3E
FEB 13	9	42	10.6	17 30 14.2	406.0	3240.3	1766.0	1.1	-4.6	18.1	86.8	347.7	14.4	0.999	175.9E
FEB 14	10	26	51.2	12 35 20.2	406.4	3237.6	1764.5	-0.3	-3.5	20.1	99.0	94.5	15.4	0.994	170.9W
FEB 15	11	9	44.8	7 13 52.6	406.0	3240.1	1765.9	-1.7	-2.3	21.4	111.1	108.1	16.4	0.971	160.5W
FEB 16	11	51	41.2	1 36 59.2	405.0	3248.3	1770.3	-3.0	-0.9	21.9	123.3	112.3	17.4	0.932	149.7W
FEB 17	12	33	36.1	-4 -4-57.7	403.2	3262.8	1778.2	-4.4	0.5	21.6	135.4	113.7	18.4	0.877	138.8W
FEB 18	13	16	29.3	-9-41-39.8	400.6	3284.3	1789.9	-5.6	1.9	20.6	147.6	113.2	19.4	0.808	127.9W
FEB 19	14	1	23.3	-15 -1-55.3	397.1	3313.5	1805.9	-6.6	3.2	18.7	159.7	111.4	20.4	0.726	116.7W
FEB 20	14	49	21.0	-19-52-32.3	392.7	3350.7	1826.1	-7.4	4.4	15.9	171.9	108.1	21.4	0.633	105.3W
FEB 21	15	41	17.0	-23-57-19.4	387.5	3395.5	1850.6	-7.9	5.4	12.2	184.0	103.4	22.4	0.533	93.6W
FEB 22	16	37	41.7	-26-56-51.2	381.7	3446.9	1878.5	-8.0	6.2	7.4	196.2	97.4	23.4	0.428	81.6W
FEB 23	17	38	18.6	-28-30-5.7	375.6	3502.5	1908.8	-7.6	6.6	1.8	208.4	90.2	24.4	0.323	69.1W
FEB 24	18	41	48.0	-28-18-46.4	369.7	3558.7	1939.5	-6.7	6.7	355.9	220.6	82.3	25.4	0.222	56.2W
FEB 25	19	46	1.0	-26-13-33.1	364.4	3610.6	1967.7	-5.4	6.4	350.2	232.8	74.4	26.4	0.134	42.8W
FEB 26	20	48	47.1	-22-18-36.5	360.2	3652.5	1990.6	-3.7	5.6	345.3	245.0	66.6	27.4	0.063	29.0W
FEB 27	21	48	44.3	-16-51-30.4	357.6	3679.0	2005.1	-1.7	4.4	341.6	257.2	57.5	28.4	0.017	15.0W
FEB 28	22	45	36.4	-10-18-57.1	356.9	3686.3	2009.0	0.4	2.9	339.2	269.4	345.8	29.4	0.000	2.3E
MAR 1	23	39	58.6	-3-11-25.8	358.2	3673.0	2001.8	2.4	1.2	338.1	281.6	250.4	1.0	0.015	13.9E
MAR 2	0	32	52.8	4 1 0.1	361.3	3641.0	1984.3	4.1	-0.5	338.3	293.8	246.0	2.0	0.058	27.9E
MAR 3	1	25	26.8	10 51 15.4	366.0	3594.6	1959.0	5.6	-2.2	339.7	306.0	246.3	3.0	0.126	41.6E
MAR 4	2	18	40.5	16 56 18.9	371.7	3539.6	1929.1	6.6	-3.8	342.2	318.2	248.8	4.0	0.213	54.8E
MAR 5	3	13	13.2	21 57 29.2	377.9	3481.6	1897.5	7.2	-5.0	345.7	330.4	253.0	5.0	0.310	67.6E
MAR 6	4	9	13.6	25 40 33.9	384.1	3425.4	1866.8	7.4	-5.9	350.1	342.5	258.5	6.0	0.414	79.9E
MAR 7	5	6	13.3	27 56 22.5	389.9	3374.5	1839.1	7.2							

Date (0 DT)	RA [Mean]			Dec			Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
	(h m s)	(d ' ")	(d ' ")	l	b	c											
APR 1	2 50	25.8	20 3 7.0	370.6	3550.0	1934.7	5.8	-4.6	344.1	299.2	247.9	2.6	0.092	35.2E			
APR 2	3 47	36.1	24 26 41.2	376.5	3494.6	1904.6	6.6	-5.7	348.3	311.4	253.5	3.6	0.167	48.1E			
APR 3	4 46	6.3	27 20 27.1	382.6	3438.3	1873.8	6.9	-6.4	353.3	323.7	259.9	4.6	0.256	60.6E			
APR 4	5 44	49.3	28 38 11.5	388.6	3385.3	1845.0	6.8	-6.8	358.7	335.9	266.8	5.6	0.352	72.6E			
APR 5	6 42	18.8	28 21 52.8	394.0	3338.8	1819.7	6.4	-6.8	4.0	348.1	273.7	6.6	0.452	84.3E			
APR 6	7 37	19.3	26 40 22.4	398.6	3301.0	1799.1	5.6	-6.5	9.0	0.3	280.0	7.6	0.550	95.6E			
APR 7	8 29	8.9	23 46 37.2	402.0	3272.8	1783.7	4.5	-6.0	13.2	12.4	285.4	8.6	0.645	106.7E			
APR 8	9 17	43.3	19 54 43.1	404.3	3254.4	1773.6	3.3	-5.1	16.6	24.6	289.7	9.6	0.733	117.6E			
APR 9	10 3	28.0	15 18 0.0	405.4	3245.3	1768.7	1.9	-4.1	19.1	36.8	292.9	10.6	0.812	128.5E			
APR 10	10 47	5.9	10 8 22.5	405.5	3244.9	1768.5	0.5	-2.9	20.8	49.0	294.8	11.6	0.880	139.3E			
APR 11	11 29	28.8	4 36 33.8	404.6	3251.8	1772.3	-0.8	-1.6	21.7	61.2	295.3	12.6	0.934	150.2E			
APR 12	12 11	32.4	-1 -7 -12.0	403.0	3265.0	1779.4	-2.1	-0.2	21.9	73.3	293.8	13.6	0.973	161.1E			
APR 13	12 54	14.0	-6 -52 -19.6	400.7	3283.2	1789.4	-3.3	1.3	21.2	85.5	285.6	14.6	0.995	172.1E			
APR 14	13 38	31.6	-12 -27 -2.0	398.0	3305.3	1801.4	-4.3	2.7	19.8	97.7	142.0	15.6	0.999	176.0W			
APR 15	14 25	20.9	-17 -37 -37.9	395.0	3330.5	1815.1	-5.1	3.9	17.5	109.8	120.0	16.6	0.983	164.8W			
APR 16	15 15	29.4	-22 -8 -7.8	391.8	3358.0	1830.1	-5.6	5.1	14.2	122.0	113.0	17.6	0.947	153.2W			
APR 17	16 9	23.6	-25 -40 -31.3	388.4	3387.6	1846.3	-6.0	5.9	9.9	134.2	106.4	18.6	0.891	141.4W			
APR 18	17 6	53.5	-27 -56 -20.8	384.8	3419.1	1863.4	-6.1	6.5	4.8	146.4	99.4	19.6	0.818	129.4W			
APR 19	18 7	0.4	-28 -39 -48.2	381.1	3452.2	1881.4	-5.9	6.8	359.2	158.5	92.0	20.6	0.729	117.1W			
APR 20	19 8	4.8	-27 -41 -43.6	377.4	3486.4	1900.1	-5.5	6.6	353.6	170.7	84.6	21.6	0.628	104.6W			
APR 21	20 8	18.7	-25 -2 -22.3	373.7	3520.7	1918.8	-4.9	6.1	348.4	182.9	77.9	22.6	0.518	91.9W			
APR 22	21 6	24.6	-20 -51 -19.3	370.2	3553.5	1936.6	-4.0	5.3	344.1	195.1	72.3	23.6	0.405	78.9W			
APR 23	22 1	56.3	-15 -25 -0.5	367.3	3582.2	1952.3	-2.9	4.0	340.9	207.3	68.3	24.6	0.294	65.6W			
APR 24	22 55	15.1	-9 -3 -48.9	365.0	3604.1	1964.2	-1.7	2.6	338.9	219.6	66.0	25.6	0.194	52.1W			
APR 25	23 47	13.4	-2 -10 -15.8	363.9	3615.8	1970.6	-0.3	0.9	338.1	231.8	65.7	26.6	0.109	38.5W			
APR 26	0 38	58.2	4 51 46.3	363.9	3614.9	1970.1	1.2	-0.8	338.4	244.0	68.2	27.6	0.046	24.8W			
APR 27	1 31	37.6	11 37 27.5	365.4	3600.2	1962.1	2.6	-2.5	339.9	256.2	78.1	28.6	0.010	11.3W			
APR 28	2 26	7.8	17 41 47.1	368.3	3572.1	1946.8	3.8	-4.0	342.5	268.5	199.2	0.2	0.001	3.9E			
APR 29	3 22	58.3	22 41 8.9	372.4	3533.0	1925.5	4.9	-5.2	346.3	280.7	241.4	1.2	0.020	16.1E			
APR 30	4 21	55.4	26 15 58.4	377.4	3486.3	1900.1	5.6	-6.1	351.1	292.9	252.0	2.2	0.063	28.9E			
MAY 1	5 21	55.8	28 13 54.0	382.8	3436.5	1872.9	6.0	-6.6	356.5	305.2	260.4	3.2	0.125	41.4E			
MAY 2	6 21	20.9	28 32 12.6	388.4	3387.7	1846.3	6.0	-6.7	2.1	317.4	268.3	4.2	0.203	53.4E			
MAY 3	7 18	31.7	27 17 44.0	393.5	3343.3	1822.1	5.6	-6.5	7.3	329.6	275.4	5.2	0.291	65.1E			
MAY 4	8 12	22.5	24 43 52.8	397.9	3306.2	1801.9	4.8	-6.0	11.9	341.8	281.5	6.2	0.384	76.5E			
MAY 5	9 2	34.4	21 6 31.9	401.3	3278.2	1786.6	3.8	-5.3	15.6	354.1	286.4	7.2	0.480	87.6E			
MAY 6	9 49	27.4	16 40 51.9	403.6	3260.1	1776.8	2.5	-4.3	18.4	6.3	290.1	8.2	0.576	98.5E			
MAY 7	10 33	45.9	11 39 57.0	404.5	3252.3	1772.5	1.2	-3.1	20.3	18.5	292.6	9.2	0.667	109.4E			
MAY 8	11 16	25.5	6 14 47.0	404.3	3254.4	1773.6	-0.2	-1.8	21.5	30.7	293.8	10.2	0.753	120.3E			
MAY 9	11 58	26.6	0 35 6.9	402.9	3265.4	1779.7	-1.6	-0.5	21.9	42.9	293.8	11.2	0.830	131.2E			
MAY 10	12 40	51.4	-5 -9 -25.3	400.6	3284.2	1789.9	-2.8	0.9	21.5	55.0	292.1	12.2	0.896	142.2E			
MAY 11	13 24	42.6	-10 -48 -6.9	397.6	3309.0	1803.4	-3.8	2.3	20.3	67.2	288.3	13.2	0.947	153.4E			
MAY 12	14 11	1.5	-16 -8 -4.6	394.1	3338.0	1819.2	-4.6	3.6	18.3	79.4	279.5	14.2	0.982	164.6E			
MAY 13	15 0	42.1	-20 -53 -27.9	390.5	3369.4	1836.3	-5.1	4.8	15.2	91.6	239.4	15.2	0.998	175.0E			
MAY 14	15 54	19.4	-24 -45 -30.8	386.8	3401.4	1853.8	-5.3	5.7	11.2	103.8	128.7	16.2	0.993	170.4W			
MAY 15	16 51	50.7	-27 -24 -2.9	383.3	3432.5	1870.7	-5.2	6.3	6.2	116.0	109.3	17.2	0.966	158.6W			
MAY 16	17 52	19.4	-28 -31 -2.9	380.1	3461.6	1886.6	-4.9	6.6	0.7	128.1	98.5	18.2	0.917	146.4W			
MAY 17	18 53	59.2	-27 -55 -29.7	377.2	3488.0	1901.0	-4.4	6.5	354.9	140.3	89.5	19.2	0.847	133.8W			
MAY 18	19 54	47.8	-25 -36 -59.6	374.7	3511.4	1913.7	-3.8	6.1	349.6	152.5	81.8	20.2	0.759	121.1W			
MAY 19	20 53	12.8	-21 -45 -43.0	372.5	3531.5	1924.7	-3.0	5.3	345.1	164.7	75.5	21.2	0.657	108.2W			
MAY 20	21 48	38.5	-16 -38 -59.6	370.8	3548.1	1933.7	-2.1	4.2	341.6	176.9	70.7	22.2	0.546	95.1W			
MAY 21	22 41	22.4	-10 -37 -16.1	369.5	3560.5	1940.5	-1.2	2.8	339.4	189.1	67.7	23.2	0.431	82.0W			
MAY 22	23 32	17.5	-4 -1 -35.3	368.8	3567.8	1944.5	-0.2	1.2	338.2	201.4	66.4	24.2	0.320	68.7W			
MAY 23	0 22	33.6	2 47 6.0	368.7	3568.8	1945.0	0.8	-0.5	338.2	213.6	66.9	25.2	0.217	55.5W			
MAY 24	1 13	24.7	9 27 36.1	369.3	3562.1	1941.4	1.9	-2.1	339.2	225.8	69.5	26.2	0.130	42.2W			
MAY 25	2 5	57.8	15 38 1.9	370.9	3547.1	1933.1	2.8	-3.6	341.4	238.1	75.0	27.2	0.063	29.1W			
MAY 26	3 1	0.0	20 56 3.6	373.4	3523.4	1920.2	3.7	-4.8	344.7	250.3	86.4	28.2	0.020	16.2W			
MAY 27	3 58	42.2	25 0 30.6	376.8	3492.0	1903.1	4.5	-5.8	349.1	262.6	134.9	29.2	0.002	5.3W			
MAY 28	4 58	23.6	27 34 30.3	380.8	3454.7	1882.8	5.0	-6.4	354.3	274.8	237.7	0.8	0.009	10.9E			
MAY 29	5 58	33.8	28 29 17.1	385.3	3414.2	1860.7	5.2	-6.6	359.9	287.1	257.7	1.8	0.039	22.7E			
MAY 30	6 57	20.2	27 46 28.7	390.0	3373.4	1838.5	5.1	-6.5	5.3	299.3	268.4	2.8	0.089	34.5E			
MAY 31	7 53	9.4	25 36 57.1	394.5	3335.4	1817.8	4.6	-6.1	10.2	311.5	276.4	3.8	0.154	46.1E			
JUN 1	8 45	15.3	22 16 47.3	398.3	3302.8	1800.0	3.8	-5.3	14.3	323.8	282.7	4.8	0.232	57.5E			
JUN 2	9 33	40.5	18 2 56.3	401.4	3277.7	1786.4	2.8	-4.4	17.5	336.0	287.3	5.8	0.319	68.6E			
JUN 3	10 19	1.2	13 10 29.4	403.3	3261.8	1777.7	1.5	-3.3	19.7	348.2	290.6	6.8	0.410	79.5E			
JUN 4	11 2	11.8	7 51 52.0	404.1	3255.9	1774.5	0.1	-2.0	21.2	0.5	292.7	7.8	0.505	90.4E			
JUN 5	11 44	14.5	2 17 18.9	403.5	3260.3	1776.9	-1.2	-0.7	21.8	12.7	293.5	8.8	0.599	101.3E			
JUN 6	12 26	14.3	-3 -23 -59.8	401.7	3274.8	1784.8	-2.6	0.7	21.7	24.9	293.1	9.8	0.690	112.2E			

Date (0 DT)		RA [Mean]			Dec (d ' ")	Dist (1000*km)	H.P. (°)	Diam (")	Libration			Sun Colng	P.A. Limb	Age (day)	Phase	Solar Elong
		h	m	s					l	b	c					
JUL 1	1	10	47	48.3	9 25 16.0	404.0	3256.3	1774.7	0.5	-2.2	20.8	330.4	291.3	5.3	0.257	60.7E
JUL 2	2	11	30	4.7	3 54 29.6	404.4	3253.1	1772.9	-0.9	-0.8	21.7	342.6	293.0	6.3	0.343	71.6E
JUL 3	3	12	11	46.9	-1-44 -6.2	403.6	3259.6	1776.5	-2.3	0.5	21.9	354.9	293.5	7.3	0.436	82.4E
JUL 4	4	12	54	1.0	-7-21-28.3	401.5	3276.4	1785.7	-3.6	1.9	21.3	7.1	292.7	8.3	0.531	93.4E
JUL 5	5	13	37	54.5	-12-47-54.0	398.3	3303.2	1800.2	-4.8	3.2	19.9	19.3	290.6	9.3	0.626	104.5E
JUL 6	6	14	24	35.2	-17-51-34.1	394.0	3338.9	1819.7	-5.6	4.3	17.6	31.5	287.2	10.3	0.719	115.8E
JUL 7	7	15	15	4.6	-22-17-14.4	389.0	3381.8	1843.1	-6.1	5.3	14.3	43.7	282.1	11.3	0.805	127.4E
JUL 8	8	16	10	2.9	-25-45-45.5	383.6	3429.3	1869.0	-6.3	6.0	10.0	55.9	275.2	12.3	0.880	139.4E
JUL 9	9	17	9	26.2	-27-55-23.2	378.3	3478.0	1895.5	-5.9	6.5	4.7	68.1	265.7	13.3	0.941	151.7E
JUL 10	10	18	12	5.2	-28-26 -8.1	373.3	3524.0	1920.6	-5.2	6.6	358.9	80.3	250.7	14.3	0.981	164.2E
JUL 11	11	19	15	51.2	-27 -6-19.6	369.2	3563.1	1941.9	-4.2	6.2	353.0	92.5	192.2	15.3	0.998	174.9E
JUL 12	12	20	18	21.1	-23-57-48.0	366.3	3591.9	1957.6	-2.8	5.5	347.7	104.7	96.2	16.3	0.988	167.5W
JUL 13	13	21	17	54.5	-19-15-53.2	364.6	3608.1	1966.4	-1.4	4.4	343.5	116.9	79.4	17.3	0.951	154.3W
JUL 14	14	22	14	0.2	-13-24-31.8	364.3	3611.1	1968.1	0.1	3.0	340.5	129.1	71.9	18.3	0.888	140.8W
JUL 15	15	23	7	6.2	-6-50-24.1	365.3	3602.0	1963.1	1.4	1.4	338.7	141.3	68.0	19.3	0.803	127.2W
JUL 16	16	23	58	14.2	0 1 0.5	367.2	3582.8	1952.6	2.6	-0.2	338.1	153.5	66.5	20.3	0.702	113.7W
JUL 17	17	0	48	39.2	6 46 49.2	369.9	3556.6	1938.3	3.7	-1.8	338.6	165.7	66.8	21.3	0.592	100.5W
JUL 18	18	1	39	35.1	13 6 34.8	373.1	3526.0	1921.7	4.5	-3.3	340.2	177.9	68.9	22.3	0.479	87.4W
JUL 19	19	2	32	4.5	18 41 29.8	376.6	3493.3	1903.8	5.0	-4.6	342.8	190.1	72.7	23.3	0.369	74.6W
JUL 20	20	3	26	46.6	23 14 1.5	380.2	3460.1	1885.7	5.4	-5.6	346.5	202.4	78.0	24.3	0.267	62.1W
JUL 21	21	4	23	43.3	26 28 32.4	383.9	3427.5	1868.0	5.6	-6.3	351.1	214.6	84.7	25.3	0.178	49.8W
JUL 22	22	5	22	9.7	28 13 25.2	387.4	3395.9	1850.8	5.6	-6.6	356.4	226.8	92.8	26.3	0.105	37.7W
JUL 23	23	6	20	40.7	28 23 46.1	390.9	3365.8	1834.3	5.4	-6.6	1.9	239.1	102.5	27.3	0.051	25.9W
JUL 24	24	7	17	38.2	27 3 2.8	394.2	3337.3	1818.9	5.0	-6.2	7.1	251.3	116.4	28.3	0.016	14.5W
JUL 25	25	8	11	45.2	24 22 9.7	397.3	3311.2	1804.6	4.3	-5.6	11.7	263.6	165.7	29.3	0.002	4.8W
JUL 26	26	9	2	26.2	20 36 25.0	400.1	3287.9	1791.9	3.4	-4.7	15.5	275.8	265.4	0.8	0.007	9.9E
JUL 27	27	9	49	46.8	16 2 9.0	402.5	3268.6	1781.4	2.4	-3.6	18.3	288.1	282.3	1.8	0.032	20.5E
JUL 28	28	10	34	21.2	10 54 26.6	404.3	3254.3	1773.6	1.1	-2.4	20.3	300.3	288.8	2.8	0.074	31.4E
JUL 29	29	11	16	59.6	5 26 14.3	405.3	3246.4	1769.3	-0.2	-1.0	21.5	312.6	292.2	3.8	0.130	42.2E
JUL 30	30	11	58	39.5	0-11-31.4	405.3	3246.1	1769.1	-1.7	0.4	21.9	324.8	293.7	4.8	0.200	53.1E
JUL 31	31	12	40	22.0	-5-49-10.2	404.3	3254.5	1773.7	-3.1	1.7	21.5	337.1	293.7	5.8	0.281	63.9E
AUG 1	1	13	23	10.6	-11-17-14.6	402.1	3272.2	1783.4	-4.4	3.0	20.4	349.3	292.5	6.8	0.370	74.8E
AUG 2	2	14	8	10.1	-16-25-15.5	398.7	3299.8	1798.4	-5.6	4.2	18.5	1.5	290.0	7.8	0.465	85.9E
AUG 3	3	14	56	23.2	-21 0-25.5	394.3	3336.9	1818.6	-6.4	5.2	15.6	13.7	286.1	8.8	0.564	97.2E
AUG 4	4	15	48	40.9	-24-46-39.0	389.0	3382.5	1843.5	-7.0	6.0	11.8	25.9	280.9	9.8	0.663	108.8E
AUG 5	5	16	45	25.0	-27-24-36.2	383.1	3434.5	1871.8	-7.1	6.5	6.9	38.1	274.3	10.8	0.757	120.9E
AUG 6	6	17	46	5.6	-28-33-56.4	377.0	3489.8	1902.0	-6.7	6.7	1.4	50.3	266.5	11.8	0.844	133.3E
AUG 7	7	18	49	10.3	-27-58-16.7	371.2	3544.1	1931.6	-5.9	6.5	355.5	62.5	257.6	12.8	0.916	146.2E
AUG 8	8	19	52	26.6	-25-31-18.4	366.2	3592.5	1957.9	-4.7	5.9	349.9	74.7	247.0	13.8	0.968	159.4E
AUG 9	9	20	53	53.0	-21-20-17.8	362.5	3629.8	1978.2	-3.2	4.9	345.1	86.9	223.8	14.8	0.996	172.7E
AUG 10	10	21	52	22.6	-15-44-39.1	360.3	3651.9	1990.3	-1.4	3.5	341.5	99.1	89.4	15.8	0.995	171.9W
AUG 11	11	22	47	53.0	-9-11 -0.7	359.8	3656.7	1992.9	0.4	1.9	339.2	111.3	71.3	16.8	0.965	158.3W
AUG 12	12	23	41	7.9	-2 -8-10.3	361.0	3644.3	1986.1	2.1	0.1	338.2	123.5	66.8	17.8	0.907	144.3W
AUG 13	13	0	33	13.7	4 56 19.6	363.7	3617.3	1971.4	3.6	-1.6	338.3	135.7	65.7	18.8	0.826	130.5W
AUG 14	14	1	25	21.9	11 37 44.3	367.5	3579.7	1950.9	4.9	-3.2	339.6	147.8	67.0	19.8	0.728	117.0W
AUG 15	15	2	18	35.2	17 34 25.0	372.1	3535.8	1927.0	5.9	-4.5	342.0	160.0	70.0	20.8	0.621	103.8W
AUG 16	16	3	13	35.3	22 27 40.4	377.0	3489.9	1902.0	6.5	-5.6	345.5	172.3	74.6	21.8	0.510	91.0W
AUG 17	17	4	10	30.0	26 2 6.1	381.9	3444.9	1877.5	6.9	-6.3	350.0	184.5	80.4	22.8	0.402	78.5W
AUG 18	18	5	8	44.4	28 6 47.7	386.6	3403.2	1854.7	6.9	-6.7	355.1	196.7	87.2	23.8	0.301	66.4W
AUG 19	19	6	7	5.1	28 37 10.3	390.9	3365.8	1834.4	6.6	-6.7	0.6	208.9	94.4	24.8	0.210	54.5W
AUG 20	20	7	4	3.1	27 36 6.9	394.7	3333.2	1816.6	6.1	-6.4	5.8	221.2	101.7	25.8	0.134	42.9W
AUG 21	21	7	58	24.3	25 13 15.7	398.0	3305.5	1801.5	5.4	-5.8	10.6	233.4	108.7	26.8	0.074	31.5W
AUG 22	22	8	49	30.2	21 42 34.1	400.8	3282.5	1789.0	4.5	-4.9	14.5	245.6	116.0	27.8	0.031	20.3W
AUG 23	23	9	37	20.5	17 19 27.7	403.1	3264.2	1779.0	3.4	-3.9	17.6	257.9	127.4	28.8	0.007	9.3W
AUG 24	24	10	22	22.8	12 18 47.4	404.8	3250.5	1771.5	2.1	-2.6	19.8	270.1	248.8	0.2	0.001	3.0E
AUG 25	25	11	5	21.6	6 53 52.1	405.9	3241.7	1766.7	0.8	-1.3	21.2	282.4	288.6	1.2	0.013	13.1E
AUG 26	26	11	47	9.2	1 16 24.0	406.3	3238.4	1764.9	-0.6	0.1	21.8	294.6	293.6	2.2	0.043	23.9E
AUG 27	27	12	28	41.3	-4-23 -5.9	405.9	3241.2	1766.5	-2.1	1.5	21.7	306.8	295.0	3.2	0.090	34.7E
AUG 28	28	13	10	55.9	-9-54-35.7	404.7	3251.2	1771.9	-3.5	2.8	20.9	319.1	294.4	4.2	0.151	45.6E
AUG 29	29	13	54	51.5	-15 -7-40.1	402.5	3269.0	1781.6	-4.8	4.0	19.2	331.3	292.5	5.2	0.225	56.5E
AUG 30	30	14	41	25.5	-19-50-32.8	399.2	3295.4	1796.0	-5.9	5.1	16.6	343.5	289.3	6.2	0.311	67.6E
AUG 31	31	15	31	27.6	-23-49-16.5	395.0	3330.7	1815.2	-6.8	6.0	13.2	355.7	284.8	7.2	0.405	78.9E
SEP 1	1	16	25	27.8	-26-47-24.7	389.9	3374.5	1839.1	-7.3	6.5</						

Date	RA	[Mean]	Dec	Dist	H.P.	Diam	Libration			Sun	P.A.	Age	Phase	Solar
(0 DT)	(h m s)	(d ' ")	(° ' ")	(1000*km)	(°)	(")	l	b	c	Colng	Limb	(day)		Elong
OCT 1	19 4 42.5	-27-38 -6.5		379.6	3465.6	1888.8	-7.1	6.4	354.1	14.0	263.0	8.5	0.559	96.6E
OCT 2	20 4 21.9	-24-54-58.8		373.8	3519.2	1918.0	-6.6	5.7	348.9	26.2	256.5	9.5	0.666	109.3E
OCT 3	21 2 35.2	-20-38-28.6		368.3	3572.2	1946.9	-5.7	4.7	344.6	38.4	251.1	10.5	0.769	122.4E
OCT 4	21 58 51.3	-15 -2-39.6		363.5	3619.8	1972.8	-4.4	3.3	341.2	50.5	247.3	11.5	0.860	135.9E
OCT 5	22 53 23.3	-8-27-38.3		359.8	3656.6	1992.8	-2.8	1.6	339.1	62.7	245.4	12.5	0.932	149.8E
OCT 6	23 46 57.3	-1-17-54.5		357.8	3677.6	2004.3	-0.9	-0.2	338.1	74.9	247.0	13.5	0.980	163.9E
OCT 7	0 40 36.4	5 59 2.7		357.6	3679.4	2005.3	1.0	-1.9	338.4	87.0	284.8	14.5	1.000	177.6E
OCT 8	1 35 25.7	12 54 14.3		359.3	3661.4	1995.5	3.0	-3.6	339.9	99.2	56.1	15.5	0.988	167.5W
OCT 9	2 32 16.0	18 59 11.2		362.9	3625.8	1976.1	4.7	-5.0	342.7	111.3	64.0	16.5	0.948	153.6W
OCT 10	3 31 25.3	23 48 31.2		367.8	3577.2	1949.5	6.2	-6.0	346.8	123.5	70.6	17.5	0.883	140.0W
OCT 11	4 32 22.9	27 3 12.2		373.7	3521.0	1918.9	7.2	-6.6	351.8	135.6	77.6	18.5	0.801	126.9W
OCT 12	5 33 47.1	28 33 38.8		379.9	3462.9	1887.3	7.8	-6.8	357.4	147.8	85.0	19.5	0.706	114.2W
OCT 13	6 33 49.8	28 21 11.3		386.1	3407.5	1857.1	7.9	-6.6	3.0	160.0	92.3	20.5	0.605	102.0W
OCT 14	7 30 56.7	26 36 32.7		391.8	3358.0	1830.1	7.5	-6.1	8.2	172.2	98.9	21.5	0.503	90.2W
OCT 15	8 24 16.7	23 35 47.9		396.7	3316.7	1807.6	6.8	-5.4	12.6	184.4	104.4	22.5	0.404	78.8W
OCT 16	9 13 46.6	19 36 9.1		400.6	3284.3	1790.0	5.8	-4.4	16.1	196.6	108.8	23.5	0.311	67.6W
OCT 17	9 59 57.6	14 53 17.4		403.4	3261.2	1777.4	4.6	-3.2	18.8	208.8	111.8	24.5	0.226	56.6W
OCT 18	10 43 39.2	9 40 33.7		405.2	3246.8	1769.5	3.2	-1.9	20.6	221.0	113.5	25.5	0.152	45.8W
OCT 19	11 25 48.1	4 9 20.0		406.0	3240.4	1766.0	1.8	-0.5	21.6	233.2	113.8	26.5	0.091	35.0W
OCT 20	12 7 22.5	-1-30 -9.2		405.9	3241.1	1766.4	0.4	0.9	21.9	245.4	112.0	27.5	0.044	24.2W
OCT 21	12 49 19.8	-7 -7-50.4		405.1	3247.7	1770.0	-1.0	2.2	21.4	257.6	105.8	28.5	0.014	13.4W
OCT 22	13 32 36.0	-12-32-58.8		403.6	3259.4	1776.4	-2.3	3.5	20.2	269.8	63.5	29.5	0.001	3.6W
OCT 23	14 18 3.4	-17-33-27.1		401.6	3275.7	1785.3	-3.4	4.6	18.1	282.0	311.3	0.8	0.007	9.3E
OCT 24	15 6 26.0	-21-55-22.5		399.2	3296.0	1796.3	-4.4	5.6	15.0	294.2	297.6	1.8	0.031	20.3E
OCT 25	15 58 9.7	-25-23-17.3		396.2	3320.3	1809.6	-5.2	6.2	11.1	306.4	289.5	2.8	0.074	31.5E
OCT 26	16 53 10.3	-27-41-16.8		392.9	3348.7	1825.0	-5.8	6.6	6.4	318.6	282.1	3.8	0.135	43.0E
OCT 27	17 50 43.7	-28-35-17.2		389.1	3381.2	1842.7	-6.2	6.7	1.0	330.8	274.6	4.8	0.212	54.7E
OCT 28	18 49 30.4	-27-56 -6.8		384.9	3417.8	1862.7	-6.3	6.4	355.5	343.0	267.2	5.8	0.303	66.6E
OCT 29	19 47 58.5	-25-41-49.2		380.5	3458.0	1884.6	-6.2	5.8	350.3	355.2	260.5	6.8	0.404	78.8E
OCT 30	20 44 56.1	-21-58-10.0		375.8	3500.7	1907.9	-5.8	4.9	345.8	7.4	254.7	7.8	0.513	91.4E
OCT 31	21 39 52.3	-16-57 -8.8		371.3	3543.8	1931.4	-5.1	3.6	342.3	19.6	250.3	8.8	0.624	104.2E
NOV 1	22 32 59.4	-10-55 -1.1		367.1	3584.1	1953.4	-4.1	2.1	339.8	31.7	247.4	9.8	0.731	117.4E
NOV 2	23 25 2.6	-4-11 -2.6		363.7	3617.8	1971.7	-2.8	0.5	338.4	43.9	246.5	10.8	0.828	130.9E
NOV 3	0 17 6.3	2 52 46.7		361.4	3640.5	1984.1	-1.3	-1.3	338.1	56.0	248.0	11.8	0.908	144.6E
NOV 4	1 10 21.7	9 51 36.7		360.6	3648.6	1988.5	0.4	-2.9	339.0	68.2	253.3	12.8	0.965	158.4E
NOV 5	2 5 53.1	16 18 9.5		361.5	3639.9	1983.7	2.1	-4.4	341.3	80.3	274.0	13.8	0.995	171.8E
NOV 6	3 4 19.8	21 44 19.1		364.0	3614.6	1970.0	3.8	-5.5	344.8	92.4	40.4	14.8	0.996	172.4W
NOV 7	4 5 33.8	25 44 39.6		368.0	3575.2	1948.5	5.3	-6.3	349.4	104.6	65.9	15.8	0.969	159.5W
NOV 8	5 8 24.4	28 1 21.4		373.2	3525.8	1921.6	6.3	-6.6	355.0	116.7	77.1	16.8	0.917	146.5W
NOV 9	6 10 50.9	28 28 38.1		379.0	3471.5	1892.0	7.0	-6.6	0.8	128.9	86.2	17.8	0.847	133.8W
NOV 10	7 10 46.8	27 13 40.5		385.0	3417.1	1862.3	7.2	-6.2	6.3	141.0	94.0	18.8	0.763	121.6W
NOV 11	8 6 47.4	24 32 52.1		390.8	3366.9	1834.9	7.0	-5.4	11.2	153.2	100.6	19.8	0.670	109.8W
NOV 12	8 58 28.2	20 45 57.0		395.8	3323.7	1811.4	6.3	-4.5	15.1	165.3	105.7	20.8	0.573	98.3W
NOV 13	9 46 13.1	16 11 25.8		399.9	3289.5	1792.8	5.3	-3.3	18.0	177.5	109.5	21.8	0.476	87.1W
NOV 14	10 30 53.6	11 4 38.3		402.9	3265.3	1779.6	4.1	-2.1	20.1	189.7	112.0	22.8	0.382	76.2W
NOV 15	11 13 31.8	5 37 47.8		404.7	3251.3	1772.0	2.7	-0.7	21.4	201.9	113.2	23.8	0.293	65.4W
NOV 16	11 55 12.1	0 1 1.1		405.2	3246.9	1769.6	1.2	0.7	21.9	214.1	113.1	24.8	0.211	54.6W
NOV 17	12 36 58.0	-5-36-23.4		404.6	3251.4	1772.0	-0.2	2.0	21.6	226.2	111.6	25.8	0.140	43.8W
NOV 18	13 19 51.0	-11 -4-40.7		403.2	3263.4	1778.5	-1.5	3.3	20.6	238.4	108.2	26.8	0.081	33.0W
NOV 19	14 4 49.3	-16-12-34.4		400.9	3281.5	1788.4	-2.6	4.4	18.8	250.6	101.7	27.8	0.037	22.1W
NOV 20	14 52 43.7	-20-46-31.9		398.2	3304.1	1800.7	-3.5	5.3	16.0	262.8	86.2	28.8	0.010	11.4W
NOV 21	15 44 7.5	-24-30-39.9		395.1	3329.9	1814.8	-4.3	6.0	12.3	275.0	2.9	0.1	0.002	4.7W
NOV 22	16 39 2.9	-27 -7-48.7		391.9	3357.5	1829.8	-4.7	6.5	7.7	287.2	299.2	1.1	0.014	13.4E
NOV 23	17 36 48.2	-28-22-10.1		388.5	3386.2	1845.5	-5.0	6.6	2.4	299.4	283.3	2.1	0.046	24.8E
NOV 24	18 35 58.4	-28 -3 -1.7		385.2	3415.2	1861.3	-5.1	6.3	356.8	311.6	273.0	3.1	0.099	36.7E
NOV 25	19 34 49.6	-26 -7-55.8		382.0	3444.3	1877.2	-5.0	5.8	351.5	323.8	264.6	4.1	0.171	48.8E
NOV 26	20 31 55.8	-22-43-15.8		378.8	3473.4	1893.0	-4.7	4.9	346.8	336.0	257.9	5.1	0.260	61.2E
NOV 27	21 26 35.8	-18 -2 -8.5		375.7	3502.0	1908.6	-4.2	3.7	343.1	348.2	252.6	6.1	0.361	73.7E
NOV 28	22 18 56.4	-12-21-18.9		372.8	3529.6	1923.6	-3.6	2.3	340.3	0.3	249.0	7.1	0.471	86.5E
NOV 29	23 9 41.4	-5-58-59.0		370.1	3554.8	1937.3	-2.8	0.7	338.7	12.5	247.1	8.1	0.584	99.5E
NOV 30	23 59 55.8	0 45 50.7		367.9	3575.7	1948.8	-1.9	-0.9	338.1	24.6	246.9	9.1	0.694	112.7E
DEC 1	0 50 54.6	7 32 51.8		366.5	3590.1	1956.6	-0.7	-2.5	338.6	36.8	248.6	10.1	0.795	126.0E
DEC 2	1 43 51.6	13 59 40.2		365.9	3595.4	1959.5	0.6	-4.0	340.2	48.9	252.6	11.1	0.880	139.4E
DEC 3	2 39 46.1	19 41 34.5		366.5	3589.7	1956.4	1.9	-5.2	343.1	61.0	259.9	12.1	0.945	152.7E
DEC 4	3 39 2.2	24 13 2.0		368.3	3572.0	1946.7	3.3	-6.0	347.3	73.2	275.1	13.1	0.985	165.7E
DEC 5	4 41 5.3	27 11 27.7		371.4	3542.9	1930.9	4.4	-6.5	352.5	85.3	349.5	14.1	0.998	175.1E
DEC 6	5 44 14.5	28 22 52.0		375.4	3504.4	1909.9	5.4	-6.5	358.3	97.4	67.5			

SECTION 3

**GEOCENTRIC
EPHEMERIS
FOR THE
MAJOR PLANETS**

1995-2006

TWELVE YEAR PLANETARY EPHEMERIS: 1995 - 2006

SECTION 3: Geocentric Ephemeris for the Major Planets

<u>Column</u>	<u>Heading</u>	<u>Definition/Description</u>
1	Date (0 DT)	Calendar Date (Gregorian). All ephemeris positions are for 00:00:00 DT (Terrestrial Dynamical Time).
2	RA (h m s)	Apparent Right Ascension of Planet for mean equinox of date (hours, minutes, seconds).
3	Dec (d ' ")	Apparent Declination of Planet for mean equinox of date (degrees, arc-minutes, arc-seconds).
4	Delta (a.u.)	Distance of the Planet from Earth in astronomical units ($1 \text{ a.u.} = 1.496 \times 10^8 \text{ km}$).
5	Rho (a.u.)	Distance of the Planet from the Sun in astronomical units ($1 \text{ a.u.} = 1.496 \times 10^8 \text{ km}$).
6	RV (km/s)	Geocentric Radial Velocity of the Planet (kilometers per second).
7	V	Apparent Visual Magnitude of the Planet.
8	Diam (")	Apparent Angular Diameter of the Planet (arc-seconds).
9	Phase	Fractional area (or diameter) of the Planet's apparent disk illuminated by sunlight.
10	S.E. Lat	Sub-Earth Latitude of the central point of the Planet's disk (degrees).
11	S.E. Long	Sub-Earth Longitude of the central point of the Planet's disk (degrees). Also called CML (Central Meridian Longitude).
12	P.A. Axis	Position Angle of the Planet's rotation axis, measured eastwards (counter-clockwise) from the celestial north point of the planetary disk (degrees).
13	L _s	Planetocentric Orbital Longitude of the Sun, measured eastward in the Planet's orbital plane from Planet's vernal equinox (degrees). Values of 0°, 90°, 180°, and 270° correspond to the beginning of spring, summer, autumn, and winter, in planet's northern hemisphere.
14	Solar Elong	Solar Elongation of the Planet. Defined as geocentric angular position of Planet with respect to the Sun (degrees). 'E' is east (evening sky) and 'W' is west (morning sky).

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 1	19 29 47.9	-24 -1-23.2	1.34091	0.41545	-21.007	-0.8	5.0	0.950	-4.0	177.2	354.5	192.2	10.6E	
JAN 3	19 43 44.8	-23-28-41.6	1.31507	0.40520	-23.771	-0.8	5.1	0.935	-4.2	186.3	352.9	199.3	11.7E	
JAN 5	19 57 31.1	-22-49-51.7	1.28595	0.39434	-26.686	-0.8	5.2	0.915	-4.4	195.3	351.3	206.8	12.9E	
JAN 7	20 11 2.2	-22 -5 -3.2	1.25337	0.38302	-29.741	-0.8	5.4	0.891	-4.7	204.4	349.8	214.8	14.0E	
JAN 9	20 24 12.2	-21-14-34.5	1.21720	0.37146	-32.910	-0.8	5.5	0.861	-4.9	213.5	348.3	223.2	15.2E	
JAN 11	20 36 53.4	-20-18-55.1	1.17733	0.35988	-36.136	-0.8	5.7	0.824	-5.2	222.6	346.9	232.2	16.2E	
JAN 13	20 48 56.3	-19-18-50.4	1.13375	0.34858	-39.321	-0.7	5.9	0.778	-5.5	231.9	345.6	241.8	17.1E	
JAN 15	21 0 8.5	-18-15-26.1	1.08658	0.33790	-42.313	-0.7	6.2	0.723	-5.8	241.4	344.4	252.0	17.9E	
JAN 17	21 10 14.4	-17-10-14.0	1.03616	0.32823	-44.887	-0.6	6.5	0.657	-6.2	251.0	343.4	262.8	18.5E	
JAN 19	21 18 55.0	-16 -5-16.6	0.98316	0.31998	-46.747	-0.5	6.8	0.580	-6.6	261.0	342.5	274.3	18.7E	
JAN 21	21 25 48.4	-15 -3-10.0	0.92859	0.31357	-47.537	-0.3	7.2	0.493	-7.1	271.3	341.8	286.3	18.6E	
JAN 23	21 30 30.6	-14 -7 -0.1	0.87390	0.30934	-46.878	-0.1	7.7	0.399	-7.6	282.2	341.3	298.7	17.9E	
JAN 25	21 32 38.9	-13-20-10.6	0.82097	0.30755	-44.444	0.4	8.2	0.301	-8.2	293.8	341.1	311.3	16.7E	
JAN 27	21 31 56.6	-12-45-58.4	0.77197	0.30832	-40.049	1.0	8.7	0.207	-8.8	306.0	341.1	324.0	14.7E	
JAN 29	21 28 19.0	-12-26-57.5	0.72918	0.31160	-33.735	1.8	9.2	0.125	-9.4	319.0	341.4	336.5	12.1E	
JAN 31	21 22 0.2	-12-24-16.8	0.69463	0.31718	-25.830	2.8	9.7	0.060	-9.9	332.8	342.0	348.7	8.8E	
FEB 2	21 13 36.1	-12-37 -9.9	0.66987	0.32474	-16.924	4.0	10.0	0.021	-10.3	347.1	342.8	0.4	5.4E	
FEB 4	21 4 1.4	-13 -2-52.8	0.65560	0.33389	-7.774	4.7	10.3	0.008	-10.5	1.8	343.8	11.4	3.6W	
FEB 6	20 54 20.2	-13-37-20.9	0.65168	0.34421	0.872	4.0	10.3	0.022	-10.6	16.5	344.8	21.9	5.8W	
FEB 8	20 45 32.1	-14-16 -8.8	0.65718	0.35530	8.444	3.0	10.2	0.056	-10.6	31.1	345.8	31.7	9.5W	
FEB 10	20 38 21.7	-14-55-25.0	0.67064	0.36681	14.638	2.2	10.0	0.104	-10.3	45.2	346.6	40.9	13.1W	
FEB 12	20 33 14.5	-15-32-18.2	0.69042	0.37841	19.402	1.6	9.7	0.161	-10.0	58.9	347.1	49.6	16.4W	
FEB 14	20 30 18.8	-16 -4-58.3	0.71494	0.38986	22.858	1.2	9.4	0.220	-9.6	72.0	347.5	57.7	19.1W	
FEB 16	20 29 30.7	-16-32-22.5	0.74280	0.40092	25.211	0.9	9.1	0.279	-9.2	84.5	347.6	65.4	21.3W	
FEB 18	20 30 39.4	-16-53-59.0	0.77284	0.41143	26.686	0.7	8.7	0.335	-8.8	96.6	347.5	72.7	23.1W	
FEB 20	20 33 31.2	-17 -9-34.2	0.80418	0.42125	27.485	0.5	8.4	0.387	-8.4	108.3	347.2	79.6	24.5W	
FEB 22	20 37 51.7	-17-19 -5.0	0.83614	0.43027	27.782	0.4	8.0	0.435	-8.0	119.6	346.7	86.3	25.5W	
FEB 24	20 43 27.8	-17-22-33.4	0.86823	0.43841	27.713	0.3	7.7	0.478	-7.7	130.5	346.1	92.6	26.3W	
FEB 26	20 50 7.4	-17-20 -4.1	0.90007	0.44560	27.382	0.2	7.5	0.518	-7.3	141.3	345.4	98.8	26.7W	
FEB 28	20 57 40.5	-17-11-42.7	0.93142	0.45179	26.869	0.2	7.2	0.554	-7.0	151.7	344.6	104.8	27.0W	
MAR 2	21 5 58.3	-16-57-35.1	0.96209	0.45695	26.233	0.2	7.0	0.587	-6.7	162.0	343.8	110.6	27.0W	
MAR 4	21 14 53.9	-16-37-47.3	0.99199	0.46103	25.514	0.1	6.8	0.617	-6.4	172.1	342.9	116.3	26.9W	
MAR 6	21 24 21.2	-16-12-25.2	1.02102	0.46402	24.744	0.1	6.6	0.644	-6.1	182.1	342.0	121.9	26.6W	
MAR 8	21 34 15.5	-15-41-34.5	1.04914	0.46591	23.940	0.1	6.4	0.670	-5.8	192.0	341.0	127.5	26.2W	
MAR 10	21 44 32.9	-15 -5-20.6	1.07632	0.46668	23.117	0.1	6.3	0.694	-5.6	201.7	340.1	133.0	25.7W	
MAR 12	21 55 10.3	-14-23-48.9	1.10254	0.46634	22.280	0.0	6.1	0.717	-5.3	211.3	339.2	138.5	25.0W	
MAR 14	22 6 5.2	-13-37 -4.5	1.12779	0.46488	21.432	0.0	6.0	0.738	-5.1	220.8	338.3	144.1	24.3W	
MAR 16	22 17 15.7	-12-45-12.5	1.15205	0.46231	20.569	0.0	5.8	0.759	-4.9	230.2	337.4	149.6	23.4W	
MAR 18	22 28 40.5	-11-48-17.6	1.17530	0.45865	19.684	-0.1	5.7	0.779	-4.6	239.6	336.5	155.3	22.5W	
MAR 20	22 40 18.6	-10-46-24.8	1.19752	0.45391	18.769	-0.1	5.6	0.798	-4.4	248.8	335.7	161.1	21.5W	
MAR 22	22 52 9.6	-9-39-39.1	1.21865	0.44811	17.807	-0.2	5.5	0.817	-4.2	258.0	335.0	167.0	20.3W	
MAR 24	23 4 13.1	-8-28 -5.7	1.23863	0.44130	16.783	-0.3	5.4	0.836	-4.0	267.0	334.3	173.1	19.1W	
MAR 26	23 16 29.4	-7-11-50.5	1.25739	0.43352	15.673	-0.3	5.4	0.855	-3.8	276.0	333.6	179.3	17.8W	
MAR 28	23 28 58.9	-5-50-59.8	1.27480	0.42483	14.452	-0.4	5.3	0.874	-3.6	284.9	333.0	185.9	16.4W	
MAR 30	23 41 42.1	-4-25-41.0	1.29072	0.41530	13.087	-0.5	5.2	0.892	-3.5	293.7	332.5	192.7	14.9W	
APR 1	23 54 40.2	-2-56 -2.9	1.30497	0.40504	11.541	-0.7	5.2	0.911	-3.3	302.4	332.1	199.8	13.4W	
APR 3	0 7 54.1	-1-22-16.5	1.31730	0.39417	9.768	-0.8	5.1	0.929	-3.1	311.0	331.8	207.3	11.7W	
APR 5	0 21 25.2	0 15 23.9	1.32743	0.38285	7.719	-1.0	5.1	0.947	-2.9	319.6	331.6	215.3	9.9W	
APR 7	0 35 14.8	1 56 39.5	1.33501	0.37128	5.339	-1.2	5.0	0.963	-2.8	328.0	331.4	223.8	8.0W	
APR 9	0 49 24.0	3 41 5.1	1.33963	0.35971	2.575	-1.4	5.0	0.978	-2.6	336.3	331.4	232.7	6.1W	
APR 11	1 3 53.8	5 28 7.4	1.34080	0.34841	-0.621	-1.6	5.0	0.990	-2.4	344.6	331.5	242.3	4.0W	
APR 13	1 18 44.5	7 17 2.4	1.33803	0.33774	-4.273	-1.9	5.0	0.998	-2.3	352.7	331.8	252.5	1.9W	
APR 15	1 33 55.5	9 6 53.6	1.33077	0.32809	-8.374	-2.1	5.1	1.000	-2.1	0.8	332.2	263.4	0.8E	
APR 17	1 49 24.9	10 56 30.2	1.31854	0.31987	-12.862	-1.9	5.1	0.994	-2.0	8.9	332.7	274.8	2.8E	
APR 19	2 5 9.1	12 44 27.6	1.30097	0.31349	-17.606	-1.7	5.2	0.980	-1.8	16.9	333.4	286.8	5.1E	
APR 21	2 21 2.7	14 29 10.2	1.27786	0.30929	-22.409	-1.6	5.3	0.955	-1.7	25.0	334.2	299.2	7.3E	
APR 23	2 36 58.4	16 8 57.7	1.24929	0.30754	-27.023	-1.4	5.4	0.919	-1.6	33.0	335.1	311.9	9.6E	
APR 25	2 52 47.3	17 42 12.9	1.21562	0.30835	-31.188	-1.2	5.5	0.874	-1.4	41.2	336.1	324.6	11.7E	
APR 27	3 8 19.6	19 7 31.6	1.17751	0.31166	-34.686	-1.1	5.7	0.821	-1.3	49.6	337.3	337.1	13.7E	
APR 29	3 23 25.6	20 23 49.6	1.13581	0.31727	-37.375	-0.9	5.9	0.761	-1.1	58.1	338.5	349.2	15.6E	
MAY 1	3 37 55.8	21 30 26.0	1.09150	0.32486	-39.205	-0.7	6.2	0.699	-0.9	66.8	339.7	0.9	17.2E	
MAY 3	3 51 41.9	22 27 2.8	1.04556	0.33403	-40.206	-0.5	6.4	0.635	-0.7	75.7	340.9	12.0	18.6E	
MAY 5	4 4 36.7	23 13 41.3	0.99891	0.34437	-40.463	-0.3	6.7	0.572	-0.5	85.0	342.2	22.4	19.7E	
MAY 7	4 16 33.8	23 50 37.1	0.95233	0.35547	-40.083	-0.1	7.1	0.511	-0.3	94.4	343.3	32.3	20.6E	
MAY 9	4 27 27.9	24 18 15.3	0.90651	0.36698	-39.174	0.1	7.4	0.453	-0.1	104.2	344.4	41.5	21.2E	
MAY 11	4 37 14.0	24 37 6.1	0.86199	0.37859	-37.832	0.4	7.8	0.398	0.2	114.2	345.5	50.1	21.5E	
MAY 13	4 45 47.8	24 47 41.8	0.81924	0.39002	-36.134	0.6	8.2	0.346	0.5	124.6	346.4	58.3	21.5E	
MAY 15	4 53 5.6	24 50 35.0	0.77863	0.40108	-34.136	0.9	8.6	0.296	0.8	135.3	347.1	65.9	21.2E	
MAY 17	4 59 3.9	24 46 16.8	0.74047	0.41158	-31.878	1.1	9.1	0.250	1.2	146.2	347.8	73.2	20.6E	
MAY 19	5 3 40.1	24 35 17.4	0.70507	0.42139	-29.385	1.5	9.5	0.207	1.6	157.5	348.3	80.2	19.7E	
MAY 21	5 6 52.5	24 18 6.0	0.67267	0.43040	-26.670	1.8	10.0	0.166	2.0	169.1	348.7	86.8	18.5E	
MAY 23	5 8 41.1	23 55 12.5	0.64353	0.43853	-23.740	2.2	10.5	0.129	2.5	181.1	348.9	93.1	16.9E	
MAY 25	5 9 7.5	23 27 9.8	0.61790	0.44570	-20.598	2.6	10.9	0.096	3.0	193.4	348.9	99.3	15.0E	
MAY 27	5 8 16.1	22 54 36.9	0.59601	0.45188	-17.251	3.1	11.3	0.066	3.5	205.9	348.8	105.3	12.8E	
MAY 29	5 6 14.3	22 18 22.0	0.57811	0.45702	-13.715	3.7	11.6	0.042	4.0	218.8	348.6	111.1	10.4E	
MAY 31	5 3 12.7	21 39 25.8	0.56438	0.46108	-10.015	4.3	11.9	0.023	4.5	231.9	348.2	116.8	7.8E	
JUN 2	4 59 25.4	20 59 2.5	0.55501	0.46406	-6.191	4.9	12.1	0.010	4.9	245.2	347.8	122.4	5.1E	
JUN 4	4 55 8.8	20 18 39.3	0.55010	0.46593	-2.294	5.5	12.2	0.003	5.4	258.6	347.3	128.0	2.9E	
JUN 6	4 50 41.4	19 39 52.2	0.54970	0.46668	1.615	5.5	12.2	0.003	5.8	272.0	346.8	133.5	3.0W	
JUN 8	4 46 21.6	19 4 18.4	0.55380	0.46632	5.475	4.9	12.1	0.010	6.1	285.4	346.3	139.0	5.3W	
JUN 10	4 42 27.1	18												

1995 MERCURY

Geocentric Planetary Ephemeris

1995 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E.	S.E.	P.A.	L _s	Solar
(h m s)	(h m s)	(d ' ")	(d ' ")	(d ' ")	(a.u.)	(a.u.)	(km/s)		(")		Lat	Long	Axis		Elong
JUL 2	5 8 58.8	20 4 26.6	0.88508	0.38268	37.286	0.3	7.6	0.423	6.3	67.3	348.8	215.8	21.8W		
JUL 4	5 18 41.7	20 38 38.1	0.92883	0.37111	38.411	0.1	7.2	0.476	6.1	77.2	349.9	224.3	21.4W		
JUL 6	5 29 37.0	21 12 40.2	0.97366	0.35953	39.149	-0.1	6.9	0.531	6.0	86.9	351.2	233.3	20.7W		
JUL 8	5 41 44.1	21 45 10.5	1.01908	0.34824	39.407	-0.3	6.6	0.589	5.9	96.3	352.6	242.9	19.7W		
JUL 10	5 55 1.5	22 14 40.3	1.06447	0.33759	39.081	-0.5	6.3	0.649	5.7	105.4	354.1	253.1	18.5W		
JUL 12	6 9 26.7	22 39 36.4	1.10910	0.32796	38.061	-0.7	6.1	0.709	5.6	114.3	355.9	264.0	17.0W		
JUL 14	6 24 55.0	22 58 23.2	1.15210	0.31976	36.256	-0.9	5.8	0.769	5.5	123.0	357.7	275.4	15.4W		
JUL 16	6 41 19.6	23 9 28.5	1.19254	0.31340	33.619	-1.0	5.6	0.826	5.4	131.5	359.7	287.4	13.5W		
JUL 18	6 58 30.9	23 11 30.3	1.22947	0.30924	30.180	-1.2	5.5	0.878	5.3	139.8	1.7	299.8	11.5W		
JUL 20	7 16 16.9	23 3 26.2	1.26201	0.30753	26.055	-1.4	5.3	0.922	5.2	147.9	3.9	312.5	9.4W		
JUL 22	7 34 23.7	22 44 40.3	1.28949	0.30838	21.446	-1.6	5.2	0.956	5.2	156.0	6.0	325.2	7.2W		
JUL 24	7 52 36.8	22 15 7.4	1.31148	0.31173	16.604	-1.7	5.1	0.980	5.2	164.0	8.1	337.7	4.9W		
JUL 26	8 10 42.8	21 35 12.0	1.32787	0.31737	11.785	-1.9	5.1	0.994	5.2	172.1	10.2	349.8	2.8W		
JUL 28	8 28 30.3	20 45 42.9	1.33881	0.32499	7.201	-2.0	5.0	0.998	5.2	180.1	12.2	1.5	1.6E		
JUL 30	8 45 50.4	19 47 44.7	1.34467	0.33418	2.999	-1.8	5.0	0.995	5.2	188.2	14.1	12.6	2.8E		
AUG 1	9 2 37.1	18 42 29.7	1.34593	0.34453	-0.745	-1.5	5.0	0.985	5.2	196.3	15.8	23.0	4.7E		
AUG 3	9 18 46.9	17 31 11.1	1.34314	0.35564	-4.014	-1.3	5.0	0.971	5.2	204.6	17.5	32.8	6.7E		
AUG 5	9 34 18.4	16 14 58.2	1.33684	0.36716	-6.828	-1.1	5.0	0.955	5.3	212.9	18.9	42.0	8.7E		
AUG 7	9 49 11.6	14 54 53.8	1.32753	0.37876	-9.235	-0.9	5.1	0.936	5.3	221.3	20.3	50.7	10.5E		
AUG 9	10 3 27.5	13 31 53.6	1.31565	0.39019	-11.289	-0.8	5.1	0.916	5.4	229.9	21.5	58.8	12.3E		
AUG 11	10 17 7.7	12 6 45.9	1.30157	0.40124	-13.048	-0.6	5.2	0.896	5.5	238.5	22.6	66.5	14.0E		
AUG 13	10 30 14.0	10 40 12.5	1.28560	0.41173	-14.566	-0.5	5.2	0.876	5.5	247.3	23.6	73.7	15.5E		
AUG 15	10 42 48.5	9 12 49.3	1.26799	0.42153	-15.893	-0.4	5.3	0.855	5.6	256.1	24.5	80.7	17.0E		
AUG 17	10 54 53.0	7 45 7.5	1.24895	0.43053	-17.068	-0.3	5.4	0.835	5.7	265.0	25.3	87.3	18.4E		
AUG 19	11 6 29.4	6 17 34.8	1.22861	0.43865	-18.128	-0.2	5.5	0.814	5.7	274.1	25.9	93.6	19.7E		
AUG 21	11 17 39.2	4 50 35.8	1.20711	0.44581	-19.099	-0.1	5.6	0.794	5.8	283.2	26.5	99.8	20.9E		
AUG 23	11 28 23.6	3 24 32.9	1.18452	0.45197	-20.004	-0.1	5.7	0.773	5.9	292.4	27.0	105.8	22.0E		
AUG 25	11 38 43.5	1 59 47.2	1.16091	0.45709	-20.860	0.0	5.8	0.752	6.0	301.7	27.5	111.6	23.0E		
AUG 27	11 48 39.6	0 36 39.1	1.13634	0.46113	-21.681	0.0	5.9	0.730	6.0	311.2	27.8	117.3	23.9E		
AUG 29	11 58 11.8	0 44 31.4	1.11084	0.46409	-22.474	0.1	6.1	0.708	6.1	320.7	28.1	122.9	24.7E		
AUG 31	12 7 20.1	-2 3 23.7	1.08444	0.46595	-23.242	0.1	6.2	0.685	6.2	330.3	28.3	128.5	25.4E		
SEP 2	12 16 3.5	-3 19 35.7	1.05716	0.46669	-23.986	0.2	6.4	0.661	6.3	340.1	28.5	134.0	26.0E		
SEP 4	12 24 20.8	-4 32 43.7	1.02904	0.46631	-24.700	0.2	6.5	0.635	6.3	349.9	28.6	139.5	26.4E		
SEP 6	12 32 9.8	-5 42 20.9	1.00011	0.46482	-25.373	0.2	6.7	0.608	6.4	359.9	28.7	145.0	26.8E		
SEP 8	12 39 27.7	-6 47 56.6	0.97044	0.46222	-25.990	0.2	6.9	0.578	6.5	10.1	28.7	150.6	26.9E		
SEP 10	12 46 11.0	-7 48 55.2	0.94010	0.45852	-26.527	0.3	7.2	0.546	6.6	20.4	28.8	156.3	27.0E		
SEP 12	12 52 14.9	-8 44 34.4	0.90920	0.45374	-26.951	0.3	7.4	0.512	6.7	30.9	28.7	162.1	26.8E		
SEP 14	12 57 33.6	-9 34 3.3	0.87790	0.44792	-27.214	0.4	7.7	0.474	6.8	41.6	28.7	168.0	26.4E		
SEP 16	13 2 0.0	-10 16 20.7	0.84642	0.44108	-27.253	0.5	7.9	0.433	6.9	52.6	28.7	174.1	25.8E		
SEP 18	13 5 25.9	-10 50 12.6	0.81506	0.43327	-26.983	0.6	8.3	0.388	7.0	63.8	28.6	180.4	24.9E		
SEP 20	13 7 41.6	-11 14 10.8	0.78424	0.42455	-26.292	0.7	8.6	0.340	7.1	75.4	28.6	186.9	23.6E		
SEP 22	13 8 37.1	-11 26 33.1	0.75453	0.41500	-25.040	0.9	8.9	0.287	7.1	87.4	28.6	193.7	22.0E		
SEP 24	13 8 2.6	-11 25 25.9	0.72667	0.40472	-23.056	1.2	9.3	0.232	7.2	99.8	28.6	200.9	19.9E		
SEP 26	13 5 50.4	-11 8 55.4	0.70162	0.39383	-20.146	1.6	9.6	0.176	7.2	112.7	28.7	208.4	17.4E		
SEP 28	13 1 57.8	-10 35 27.5	0.68056	0.38250	-16.113	2.1	9.9	0.121	7.2	126.1	28.7	216.4	14.4E		
SEP 30	12 56 30.3	-9 44 23.2	0.66487	0.37093	-10.807	2.8	10.1	0.071	7.1	140.0	28.7	224.9	10.9E		
OCT 2	12 49 45.7	-8 36 44.5	0.65608	0.35935	-4.181	3.8	10.3	0.031	6.9	154.3	28.8	233.9	7.1E		
OCT 4	12 42 15.5	-7 15 57.9	0.65565	0.34807	3.625	4.9	10.3	0.007	6.6	168.8	28.8	243.5	3.4E		
OCT 6	12 34 43.6	-5 48 7.1	0.66475	0.33743	12.243	5.0	10.1	0.005	6.2	183.5	28.7	253.7	2.8W		
OCT 8	12 28 0.0	-4 21 11.6	0.68400	0.32782	21.097	3.8	9.8	0.028	5.7	197.9	28.6	264.6	6.2W		
OCT 10	12 22 51.8	-3 3 34.4	0.71329	0.31965	29.500	2.6	9.4	0.076	5.2	212.0	28.5	276.1	9.8W		
OCT 12	12 19 53.9	-2 2 17.0	0.75170	0.31332	36.798	1.6	8.9	0.146	4.7	225.4	28.5	288.1	12.8W		
OCT 14	12 19 25.0	-1 21 48.3	0.79766	0.30920	42.494	0.8	8.4	0.233	4.1	238.1	28.5	300.5	15.2W		
OCT 16	12 21 26.8	-1 3 48.8	0.84913	0.30753	46.320	0.3	7.9	0.329	3.6	250.1	28.5	313.1	16.8W		
OCT 18	12 25 48.1	-1 7 37.5	0.90393	0.30841	48.248	-0.1	7.4	0.428	3.2	261.3	28.5	325.8	17.8W		
OCT 20	12 32 9.5	-1 30 57.7	0.95993	0.31180	48.454	-0.4	7.0	0.522	2.8	272.0	28.5	338.3	18.2W		
OCT 22	12 40 8.9	-2 10 42.3	1.01532	0.31748	47.250	-0.6	6.6	0.609	2.4	282.2	28.6	350.5	18.1W		
OCT 24	12 49 24.4	-3 3 30.2	1.06869	0.32512	45.002	-0.7	6.3	0.686	2.0	292.1	28.6	2.1	17.7W		
OCT 26	12 59 36.8	-4 6 10.1	1.11903	0.33433	42.067	-0.8	6.0	0.751	1.7	301.6	28.5	13.2	16.9W		
OCT 28	13 10 30.6	-5 15 53.5	1.16573	0.34470	38.744	-0.8	5.8	0.805	1.5	310.9	28.4	23.6	16.0W		
OCT 30	13 21 53.7	-6 30 19.3	1.20848	0.35582	35.260	-0.8	5.6	0.849	1.2	320.1	28.1	33.4	14.9W		
NOV 1	13 33 37.5	-7 47 33.2	1.24720	0.36734	31.771	-0.9	5.4	0.885	1.0	329.2	27.8	42.6	13.7W		
NOV 3	13 45 35.6	-9 6 5.2	1.28193	0.37894	28.377	-0.9	5.2	0.913	0.8	338.3	27.4	51.2	12.4W		
NOV 5	13 57 43.9	-10 24 44.9	1.31282	0.39037	25.131	-0.9	5.1	0.935	0.6	347.3	27.0	59.3	11.2W		
NOV 7	14 9 59.8	-11 42 37.7	1.34006	0.40141	22.057	-0.9	5.0	0.953	0.4	356.3	26.4	67.0	9.9W		
NOV 9	14 22 21.6	-12 59 1.2	1.36385	0.41189	19.161	-0.9	4.9	0.967	0.2	363.5	25.8	74.3	8.6W		
NOV 11	14 34 48.5	-14 13 21.9	1.38440	0.42168	16.434	-0.9	4.9	0.977	0.0	370.0	25.0	81.2	7.3W		
NOV 13	14 47 20.0	-15 25 13.0	1.40189	0.43067	13.864	-1.0	4.8	0.985	-0.1	376.3	24.2	87.8	6.1W		
NOV 15	14 59 56.2	-16 34 13.0	1.41649	0.43876	11.432	-1.0	4.7	0.991	-0.3	382.4	23.3	94.2	4.8W		
NOV 17	15 12 37.2	-17 40 3.6	1.42835	0.44591	9.120	-1.0	4.7	0.995	-0.5	41.4	22.4	100.3	3.6W		
NOV 19	15 25 23.3	-18 42 29.1	1.43760	0.45205	6.908	-1.1	4.7	0.998	-0.6	50.5	21.4	106.3	2.4W		
NOV 21	15 38 14.9	-19 41 15.8	1.44435	0.45716	4.779	-1.2	4.7	0.999	-0.8	59.6	20.3	112.1	1.3W		
NOV 23	15 51 12.3	-20 36 11.0	1.44867	0.46119	2.713	-1.2	4.6	1.000	-1.0	68.7	19.1	117.8	0.5W		
NOV 25	16 4 15.7	-21 27 2.9	1.45064	0.46413	0.697	-1.1	4.6	0.999	-1.1	77.8	17.9	123.4	1.2E		
NOV 27	16 17 25.3	-22 13 40.0	1.45030	0.46597	-1.286	-1.0	4.6	0.998	-1.3	86.9	16.6	129.0	2.3E		
NOV 29	16 30 41.3	-22 55 51.0	1.44768	0.46669	-3.251	-1.0	4.6	0.996	-1.5	96.1	15.2	134.5	3.4E		
DEC 1	16 44 3.5	-23 33 25.0	1.44280	0.46629	-5.213	-0.9	4.7	0.993	-1.6	105.2	13.8	140.0	4.5E		
DEC 3	16 57 31.9	-24 6 11.0	1.43564	0.46478	-7.186	-0.8	4.7	0.989	-1.8	114.4	12.4	145.6	5.6E		
DEC 5	17 11 5.9	-24 33 58.0	1.42619	0.46217	-9.188	-0.8	4.7	0.984	-2.0	123.5	10.9	151.2	6.7E		
DEC 7	17 24 45.1	-24 56 35.3	1.41441	0.45845	-11.231	-0.7	4.8	0.978	-2.1	132.7	9.3	156.8	7.8E		
DEC 9	17 38 28.5	-25 13 52.4	1.40023												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	20 10 59.1	-21-18-14.6		1.00813	0.33728	-44.029	-0.5	6.7	0.620	-5.4	254.1	349.8	254.3	19.4E
JAN 4	20 18 58.2	-20-29-48.1		0.95635	0.32768	-45.483	-0.4	7.0	0.544	-5.9	264.4	348.9	265.2	19.4E
JAN 6	20 24 59.8	-19-42 -0.9		0.90347	0.31954	-45.856	-0.2	7.4	0.458	-6.4	275.1	348.2	276.7	18.9E
JAN 8	20 28 36.8	-18-57-23.1		0.85099	0.31324	-44.735	0.1	7.9	0.365	-6.9	286.4	347.8	288.7	17.9E
JAN 10	20 29 23.6	-18-18-40.4		0.80085	0.30916	-41.732	0.6	8.4	0.268	-7.5	298.4	347.7	301.1	16.2E
JAN 12	20 27 2.2	-17-48-31.2		0.75539	0.30752	-36.592	1.2	8.9	0.175	-8.1	311.1	347.9	313.8	13.8E
JAN 14	20 21 30.8	-17-28-53.5		0.71711	0.30845	-29.335	2.1	9.4	0.096	-8.7	324.6	348.5	326.5	10.6E
JAN 16	20 13 12.7	-17-20-31.8		0.68827	0.31187	-20.360	3.3	9.8	0.038	-9.2	338.8	349.4	339.0	7.0E
JAN 18	20 2 59.4	-17-22-41.5		0.67042	0.31758	-10.438	4.5	10.0	0.010	-9.6	353.5	350.6	351.1	3.6E
JAN 20	19 52 3.5	-17-33-24.8		0.66411	0.32525	-0.542	4.4	10.1	0.012	-9.8	8.5	351.8	2.7	4.2W
JAN 22	19 41 42.1	-17-50-10.5		0.66878	0.33449	8.429	3.3	10.1	0.043	-9.9	23.3	353.1	13.8	7.9W
JAN 24	19 32 58.3	-18-10-33.8		0.68297	0.34487	15.882	2.3	9.9	0.093	-9.8	37.7	354.1	24.2	11.7W
JAN 26	19 26 31.0	-18-32-36.5		0.70478	0.35600	21.599	1.6	9.5	0.155	-9.6	51.5	354.9	34.0	15.2W
JAN 28	19 22 35.2	-18-54-48.6		0.73221	0.36752	25.659	1.1	9.2	0.223	-9.3	64.8	355.4	43.2	18.1W
JAN 30	19 21 7.9	-19-16 -1.0		0.76350	0.37912	28.304	0.7	8.8	0.290	-8.9	77.4	355.5	51.8	20.4W
FEB 1	19 21 56.0	-19-35-19.5		0.79716	0.39054	29.826	0.5	8.4	0.353	-8.6	89.5	355.4	59.9	22.3W
FEB 3	19 24 42.2	-19-52 -0.6		0.83207	0.40158	30.501	0.3	8.1	0.412	-8.3	101.2	355.1	67.6	23.6W
FEB 5	19 29 8.8	-20 -5-29.0		0.86739	0.41205	30.559	0.2	7.8	0.465	-8.0	112.4	354.6	74.9	24.6W
FEB 7	19 34 59.6	-20-15-16.4		0.90250	0.42182	30.179	0.2	7.5	0.513	-7.7	123.3	353.9	81.8	25.3W
FEB 9	19 42 0.2	-20-21 -0.1		0.93700	0.43080	29.498	0.1	7.2	0.556	-7.4	134.0	353.1	88.4	25.7W
FEB 11	19 49 58.7	-20-22-22.7		0.97058	0.43888	28.615	0.1	6.9	0.594	-7.1	144.4	352.1	94.7	25.9W
FEB 13	19 58 45.2	-20-19-10.5		1.00305	0.44601	27.600	0.1	6.7	0.629	-6.9	154.6	351.1	100.9	25.9W
FEB 15	20 8 11.4	-20-11-13.4		1.03431	0.45214	26.503	0.0	6.5	0.660	-6.6	164.7	350.1	106.8	25.7W
FEB 17	20 18 10.6	-19-58-23.9		1.06427	0.45722	25.361	0.0	6.3	0.688	-6.4	174.6	348.9	112.6	25.4W
FEB 19	20 28 37.2	-19-40-36.3		1.09289	0.46124	24.198	0.0	6.2	0.713	-6.2	184.4	347.8	118.3	25.0W
FEB 21	20 39 26.7	-19-17-46.8		1.12017	0.46417	23.029	0.0	6.0	0.737	-6.0	194.1	346.6	124.0	24.4W
FEB 23	20 50 35.6	-18-49-52.6		1.14610	0.46598	21.864	0.0	5.9	0.758	-5.8	203.7	345.4	129.5	23.8W
FEB 25	21 2 0.8	-18-16-52.2		1.17069	0.46669	20.705	0.0	5.7	0.779	-5.7	213.2	344.2	135.0	23.1W
FEB 27	21 13 40.0	-17-38-44.7		1.19394	0.46628	19.551	-0.1	5.6	0.798	-5.5	222.6	343.0	140.6	22.2W
FEB 29	21 25 31.5	-16-55-29.8		1.21585	0.46475	18.398	-0.1	5.5	0.815	-5.3	231.9	341.9	146.1	21.4W
MAR 2	21 37 33.6	-16 -7 -7.9		1.23644	0.46212	17.239	-0.2	5.4	0.833	-5.2	241.2	340.8	151.7	20.4W
MAR 4	21 49 45.5	-15-13-39.6		1.25568	0.45839	16.062	-0.2	5.4	0.849	-5.0	250.4	339.7	157.4	19.3W
MAR 6	22 2 6.5	-14-15 -6.1		1.27354	0.45358	14.855	-0.3	5.3	0.865	-4.8	259.5	338.6	163.2	18.2W
MAR 8	22 14 36.1	-13-11-28.8		1.28998	0.44772	13.600	-0.3	5.2	0.881	-4.7	268.6	337.6	169.1	17.0W
MAR 10	22 27 14.2	-12 -2-49.4		1.30493	0.44085	12.276	-0.4	5.2	0.896	-4.6	277.6	336.6	175.2	15.7W
MAR 12	22 40 1.1	-10-49-10.6		1.31831	0.43301	10.860	-0.5	5.1	0.911	-4.4	286.5	335.7	181.5	14.4W
MAR 14	22 52 57.0	-9-30-35.6		1.32998	0.42426	9.324	-0.6	5.1	0.925	-4.3	295.3	334.9	188.0	13.0W
MAR 16	23 6 2.5	-8 -7 -9.0		1.33979	0.41469	7.632	-0.7	5.0	0.940	-4.1	304.0	334.1	194.8	11.4W
MAR 18	23 19 18.2	-6-38-56.6		1.34755	0.40439	5.750	-0.9	5.0	0.954	-4.0	312.7	333.5	202.0	9.9W
MAR 20	23 32 45.0	-5 -6 -6.9		1.35299	0.39349	3.633	-1.0	5.0	0.967	-3.9	321.3	332.9	209.6	8.2W
MAR 22	23 46 23.7	-3-28-51.3		1.35584	0.38215	1.236	-1.2	5.0	0.978	-3.7	329.8	332.4	217.5	6.4W
MAR 24	0 15.1	-1-47-25.9		1.35573	0.37057	-1.487	-1.4	5.0	0.988	-3.6	338.2	332.0	226.0	4.6W
MAR 26	0 14 19.6	0 -2-13.3		1.35227	0.35900	-4.580	-1.7	5.0	0.996	-3.5	346.6	331.7	235.1	2.8W
MAR 28	0 28 37.4	1 46 15.5		1.34500	0.34774	-8.074	-1.9	5.0	0.999	-3.4	354.8	331.5	244.7	1.3E
MAR 30	0 43 7.9	3 37 18.5		1.33347	0.33712	-11.974	-1.9	5.0	0.997	-3.3	3.0	331.4	254.9	2.0E
APR 1	0 57 49.4	5 30 0.3		1.31721	0.32755	-16.246	-1.8	5.1	0.989	-3.2	11.2	331.5	265.8	3.9E
APR 3	1 12 38.8	7 23 10.5		1.29584	0.31943	-20.796	-1.6	5.2	0.972	-3.1	19.3	331.6	277.3	6.0E
APR 5	1 27 31.4	9 15 23.3		1.26913	0.31317	-25.465	-1.5	5.3	0.945	-3.0	27.5	332.0	289.3	8.2E
APR 7	1 42 20.5	11 5 0.7		1.23707	0.30911	-30.030	-1.4	5.4	0.908	-2.9	35.7	332.4	301.8	10.3E
APR 9	1 56 57.8	12 50 17.8		1.19991	0.30752	-34.232	-1.2	5.6	0.860	-2.8	44.0	333.0	314.4	12.3E
APR 11	2 11 13.6	14 29 31.0		1.15823	0.30848	-37.818	-1.1	5.8	0.802	-2.8	52.4	333.6	327.1	14.2E
APR 13	2 24 57.7	16 1 7.2		1.11287	0.31194	-40.590	-0.9	6.0	0.738	-2.7	61.0	334.4	339.6	15.9E
APR 15	2 37 59.6	17 23 51.1		1.06483	0.31769	-42.439	-0.7	6.3	0.668	-2.6	69.9	335.1	351.7	17.3E
APR 17	2 50 10.1	18 36 48.6		1.01519	0.32538	-43.349	-0.5	6.6	0.597	-2.5	79.0	335.9	3.4	18.5E
APR 19	3 1 20.4	19 39 26.4		0.96502	0.33464	-43.380	-0.3	7.0	0.526	-2.4	88.5	336.7	14.4	19.4E
APR 21	3 11 23.1	20 31 28.3		0.91527	0.34503	-42.635	0.0	7.4	0.458	-2.3	98.2	337.5	24.8	20.0E
APR 23	3 20 11.9	21 12 50.8		0.86678	0.35617	-41.230	0.3	7.8	0.392	-2.1	108.3	338.2	34.6	20.2E
APR 25	3 27 41.4	21 43 37.6		0.82023	0.36769	-39.278	0.6	8.2	0.331	-2.0	118.8	338.8	43.8	20.1E
APR 27	3 33 47.3	22 3 56.6		0.77621	0.37929	-36.872	0.9	8.7	0.273	-1.8	129.6	339.3	52.4	19.6E
APR 29	3 38 26.2	22 13 57.5		0.73519	0.39071	-34.085	1.3	9.2	0.221	-1.6	140.9	339.7	60.5	18.8E
MAY 1	3 41 36.6	22 13 51.9		0.69758	0.40174	-30.972	1.7	9.6	0.172	-1.3	152.4	340.0	68.2	17.5E
MAY 3	3 43 18.8	22 3 54.8		0.66374	0.41220	-27.573	2.1	10.1	0.129	-1.0	164.4	340.2	75.4	15.9E
MAY 5	3 43 35.7	21 44 28.8		0.63397	0.42197	-23.925	2.6	10.6	0.091	-0.7	176.7	340.2	82.3	13.9E
MAY 7	3 42 33.5	21 16 9.3		0.60854	0.43092	-20.063	3.2	11.1	0.059	-0.3	189.4	340.1	89.0	11.6E
MAY 9	3 40 21.8	20 39 50.5		0.58767	0.43900	-16.031	3.9	11.4	0.034	0.1	202.4	339.9	95.3	9.0E
MAY 11	3 37 13.8	19 56 51.0		0.57153	0.44611	-11.883	4.6	11.8	0.015	0.5	215.6	339.6	101.4	6.2E
MAY 13	3 33 25.9	19 8 55.6		0.56023	0.45222	-7.683	5.4	12.0	0.004	0.9	229.0	339.3	107.4	3.2E
MAY 15	3 29 16.5	18 18 13.0		0.55377	0.45729	-3.503	6.1	12.1	0.000	1.4	242.5	339.0	113.2	0.6E
MAY 17	3 25 4.8	17 27 7.6		0.55209	0.46129	0.583	5.4	12.2	0.004	1.8	256.0	338.6	118.9	3.3W
MAY 19	3 21 9.1	16 38 7.1		0.55504	0.46420	4.506	4.6	12.1	0.015	2.2	269.4	338.3	124.5	6.3W
MAY 21	3 17 45.4	15 53 28.8		0.56240	0.46601	8.212	4.0	12.0	0.031	2.6	282.8	338.0	130.1	9.2W
MAY 23	3 15 7.0	15 15 8.2		0.57390	0.46669	11.661	3.4	11.7	0.054	2.9	295.9	337.8	135.6	12.0W
MAY 25	3 13 23.4	14 44 31.0		0.58922	0.46627	14.836	2.9	11.4	0.080	3.3	308.7	337.6	141.1	14.5W
MAY 27	3 12 41.2	14 22 31.6		0.60806	0.46472	17.734	2.5	11.1	0.110	3.5	321.3	337.6	146.7	16.7W
MAY 29	3 13 3.9	14 9 34.9		0.63008	0.46207	20.367	2.1	10.7	0.142	3.8	333.6	337.6	152.3	18.6W
MAY 31	3 14 32.8	14 5 41.0		0.65501	0.45832	22.755	1.8	10.3	0.176	4.0	345.5	337.7	158.0	20.1W
JUN 2	3 17 7.8	14 10 31.1		0.68256	0.45350	24.919	1.5	9.9	0.212	4.1	357.2	337.9	163.7	21.4W
JUN 4	3 20 47.9	14 23 32.9		0.71249	0.44763	26.882	1.3	9.4	0.248	4.3	8.6	338.2	169.7	22.4W
JUN 6	3 25 3													

1996 MERCURY

Geocentric Planetary Ephemeris

1996 MERCURY

Date (0 DT)	RA {Mean}			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 2	5 57 9.9	23 30 58.1	1.24317	-0.31308	26.616	-1.2	5.4	0.892	4.5	142.4	354.4	290.0	11.0W		
JUL 4	6 15 15.4	23 49 54.3	1.27167	0.30907	22.624	-1.4	5.3	0.932	4.5	150.5	356.6	302.4	8.8W		
JUL 6	6 33 51.1	23 58 52.4	1.29523	0.30751	18.083	-1.6	5.2	0.964	4.5	158.5	358.8	315.1	6.5W		
JUL 8	6 52 43.8	23 57 4.0	1.31333	0.30851	13.217	-1.8	5.1	0.985	4.6	166.4	1.0	327.8	4.2W		
JUL 10	7 11 39.5	23 44 9.9	1.32575	0.31201	8.282	-2.0	5.1	0.996	4.6	174.4	3.3	340.3	2.1W		
JUL 12	7 30 25.1	23 20 21.1	1.33255	0.31778	3.522	-2.0	5.0	0.998	4.7	182.3	5.5	352.4	1.7E		
JUL 14	7 48 49.0	22 46 14.7	1.33404	0.32551	-0.873	-1.8	5.0	0.991	4.8	190.3	7.7	4.0	3.5E		
JUL 16	8 6 42.3	22 2 46.6	1.33073	0.33478	-4.790	-1.5	5.1	0.977	4.9	198.4	9.7	15.1	5.7E		
JUL 18	8 23 58.7	21 11 3.4	1.32319	0.34519	-8.181	-1.3	5.1	0.958	5.0	206.5	11.7	25.5	7.8E		
JUL 20	8 40 34.5	20 12 15.4	1.31204	0.35634	-11.055	-1.1	5.1	0.936	5.1	214.8	13.5	35.2	9.9E		
JUL 22	8 56 27.9	19 7 31.6	1.29784	0.36787	-13.455	-0.9	5.2	0.912	5.2	223.1	15.2	44.4	11.8E		
JUL 24	9 11 38.6	17 57 56.6	1.28112	0.37947	-15.440	-0.7	5.3	0.887	5.3	231.6	16.8	53.0	13.7E		
JUL 26	9 26 7.3	16 44 29.1	1.26231	0.39088	-17.075	-0.6	5.3	0.862	5.4	240.2	18.2	61.1	15.4E		
JUL 28	9 39 55.4	15 28 1.5	1.24179	0.40190	-18.423	-0.5	5.4	0.837	5.6	248.9	19.5	68.8	17.0E		
JUL 30	9 53 4.5	14 9 20.3	1.21985	0.41235	-19.539	-0.3	5.5	0.812	5.7	257.8	20.7	76.0	18.5E		
AUG 1	10 5 36.3	12 49 6.7	1.19672	0.42211	-20.472	-0.2	5.6	0.787	5.9	266.7	21.7	82.9	19.9E		
AUG 3	10 17 32.5	11 27 57.3	1.17261	0.43105	-21.264	-0.2	5.7	0.763	6.0	275.8	22.7	89.5	21.2E		
AUG 5	10 28 54.7	10 6 25.1	1.14764	0.43911	-21.947	-0.1	5.9	0.739	6.2	284.9	23.5	95.9	22.4E		
AUG 7	10 39 44.0	8 45 0.3	1.12194	0.44621	-22.549	0.0	6.0	0.714	6.3	294.2	24.3	102.0	23.4E		
AUG 9	10 50 1.5	7 24 11.6	1.09558	0.45231	-23.087	0.1	6.1	0.690	6.5	303.6	25.0	108.0	24.4E		
AUG 11	10 59 47.5	6 4 26.1	1.06862	0.45736	-23.575	0.1	6.3	0.666	6.7	313.1	25.6	113.8	25.2E		
AUG 13	11 9 2.2	4 46 11.1	1.04113	0.46135	-24.021	0.2	6.5	0.641	6.8	322.7	26.1	119.5	25.9E		
AUG 15	11 17 45.1	3 29 54.1	1.01315	0.46424	-24.428	0.2	6.6	0.615	7.0	332.4	26.6	125.1	26.5E		
AUG 17	11 25 55.3	2 16 3.8	0.98472	0.46602	-24.793	0.3	6.8	0.588	7.2	342.3	27.0	130.7	26.9E		
AUG 19	11 33 31.2	1 5 11.4	0.95589	0.46670	-25.108	0.3	7.0	0.560	7.4	352.4	27.3	136.2	27.2E		
AUG 21	11 40 30.6	0 -2 -8.7	0.92674	0.46625	-25.359	0.4	7.3	0.531	7.5	2.5	27.6	141.7	27.4E		
AUG 23	11 46 50.4	-1 -5 -17.5	0.89734	0.46469	-25.524	0.4	7.5	0.499	7.7	12.9	27.9	147.3	27.4E		
AUG 25	11 52 26.8	-2 -3 -30.4	0.86782	0.46202	-25.572	0.5	7.8	0.466	7.9	23.5	28.1	152.9	27.1E		
AUG 27	11 57 15.1	-2 -55 -55.1	0.83833	0.45826	-25.463	0.6	8.0	0.430	8.1	34.3	28.2	158.5	26.7E		
AUG 29	12 1 9.6	-3 -41 -30.8	0.80907	0.45342	-25.143	0.6	8.3	0.391	8.4	45.3	28.3	164.3	26.0E		
AUG 31	12 4 3.8	-4 -19 -6.8	0.78035	0.44753	-24.545	0.8	8.6	0.350	8.6	56.7	28.4	170.3	25.0E		
SEP 2	12 5 50.7	-4 -47 -21.4	0.75251	0.44063	-23.582	0.9	8.9	0.306	8.8	68.3	28.5	176.4	23.7E		
SEP 4	12 6 23.0	-5 -4 -43.2	0.72604	0.43276	-22.147	1.1	9.3	0.259	9.0	80.3	28.5	182.7	22.1E		
SEP 6	12 5 34.1	-5 -9 -34.3	0.70157	0.42399	-20.115	1.4	9.6	0.211	9.1	92.7	28.5	189.2	20.1E		
SEP 8	12 3 19.4	-5 -0 -19.6	0.67985	0.41439	-17.345	1.8	9.9	0.162	9.3	105.6	28.5	196.1	17.6E		
SEP 10	11 59 38.5	-4 -35 -42.9	0.66183	0.40407	-13.701	2.3	10.2	0.114	9.3	118.9	28.4	203.2	14.8E		
SEP 12	11 54 37.2	-3 -55 -11.7	0.64857	0.39315	-9.072	2.9	10.4	0.071	9.3	132.6	28.2	210.8	11.6E		
SEP 14	11 48 30.1	-2 -59 -28.1	0.64125	0.38180	-3.415	3.7	10.5	0.036	9.2	146.7	28.0	218.8	8.1E		
SEP 16	11 41 42.2	-1 -50 -58.0	0.64103	0.37022	3.202	4.6	10.5	0.013	9.0	161.0	27.8	227.3	4.7E		
SEP 18	11 34 47.8	0 -34 -2.5	0.64892	0.35865	10.571	5.0	10.4	0.006	8.7	175.5	27.5	236.4	3.2W		
SEP 20	11 28 27.2	0 45 21.7	0.66559	0.34740	18.343	4.2	10.1	0.019	8.2	189.8	27.2	246.0	5.4W		
SEP 22	11 23 21.0	2 0 34.1	0.69125	0.33681	26.063	3.1	9.7	0.053	7.7	203.8	26.9	256.3	8.7W		
SEP 24	11 20 3.7	3 5 17.1	0.72557	0.32727	33.242	2.1	9.3	0.108	7.1	217.3	26.7	267.2	11.7W		
SEP 26	11 18 58.5	3 54 32.7	0.76764	0.31920	39.422	1.3	8.8	0.180	6.5	230.2	26.6	278.7	14.1W		
SEP 28	11 20 16.2	4 25 12.4	0.81610	0.31300	44.237	0.6	8.2	0.265	5.9	242.4	26.7	290.7	16.0W		
SEP 30	11 23 54.6	4 35 58.9	0.86921	0.30902	47.454	0.1	7.7	0.359	5.3	253.9	26.8	303.2	17.2W		
OCT 2	11 29 42.3	4 27 10.1	0.92507	0.30750	48.998	-0.2	7.3	0.455	4.8	264.8	27.0	315.8	17.8W		
OCT 4	11 37 21.0	4 0 15.6	0.98179	0.30855	48.952	-0.5	6.9	0.548	4.3	275.2	27.3	328.5	17.9W		
OCT 6	11 46 29.9	3 17 31.5	1.03763	0.31208	47.538	-0.7	6.5	0.635	3.9	285.1	27.6	341.0	17.5W		
OCT 8	11 56 48.0	2 21 37.4	1.09121	0.31789	45.064	-0.8	6.2	0.712	3.5	294.7	27.9	353.1	16.8W		
OCT 10	12 7 56.5	1 15 16.8	1.14147	0.32564	41.865	-0.9	5.9	0.777	3.2	304.0	28.2	4.7	15.8W		
OCT 12	12 19 39.6	0 1 3.9	1.18777	0.33494	38.247	-0.9	5.7	0.831	2.9	313.1	28.4	15.7	14.6W		
OCT 14	12 31 45.3	-1 -18 -45.4	1.22977	0.34536	34.456	-1.0	5.5	0.875	2.6	322.1	28.5	26.1	13.3W		
OCT 16	12 44 4.5	-2 -42 -16.4	1.26738	0.35652	30.670	-1.0	5.3	0.909	2.4	331.0	28.6	35.9	11.9W		
OCT 18	12 56 31.1	-4 -7 -55.6	1.30068	0.36805	27.004	-1.0	5.2	0.936	2.1	339.8	28.5	45.1	10.4W		
OCT 20	13 9 1.0	-5 -34 -28.2	1.32985	0.37965	23.524	-1.1	5.1	0.956	1.9	348.7	28.4	53.7	9.0W		
OCT 22	13 21 31.8	-7 0 -55.5	1.35512	0.39106	20.257	-1.1	5.0	0.971	1.7	357.5	28.1	61.8	7.5W		
OCT 24	13 34 2.0	-8 -26 -31.5	1.37674	0.40207	17.207	-1.1	4.9	0.982	1.5	6.4	27.8	69.4	6.1W		
OCT 26	13 46 31.3	-9 -50 -40.4	1.39496	0.41251	14.365	-1.2	4.8	0.990	1.3	15.3	27.4	76.7	4.7W		
OCT 28	13 58 59.8	-11 -12 -53.6	1.41001	0.42225	11.711	-1.2	4.8	0.995	1.2	24.2	26.9	83.6	3.4W		
OCT 30	14 11 27.8	-12 -32 -48.6	1.42209	0.43119	9.223	-1.3	4.7	0.998	1.0	33.2	26.3	90.2	2.0W		
NOV 1	14 23 56.0	-13 -50 -6.6	1.43138	0.43923	6.877	-1.3	4.7	1.000	0.8	42.2	25.7	96.5	0.8W		
NOV 3	14 36 25.1	-15 -4 -31.9	1.43803	0.44632	4.652	-1.3	4.7	1.000	0.6	51.2	24.9	102.6	0.7E		
NOV 5	14 48 55.7	-16 -15 -50.8	1.44217	0.45240	2.524	-1.1	4.7	0.999	0.5	60.2	24.1	108.6	1.9E		
NOV 7	15 1 28.8	-17 -23 -51.2	1.44389	0.45743	0.473	-1.0	4.7	0.997	0.3	69.3	23.2	114.4	3.1E		
NOV 9	15 14 4.9	-18 -28 -21.6	1.44329	0.46140	-1.519	-0.9	4.7	0.994	0.1	78.4	22.3	120.1	4.2E		
NOV 11	15 26 44.7	-19 -29 -11.4	1.44041	0.46427	-3.470	-0.8	4.7	0.990	0.0	87.5	21.3	125.7	5.4E		
NOV 13	15 39 28.7	-20 -26 -10.0	1.43529	0.46604	-5.396	-0.7	4.7	0.985	-0.2	96.6	20.2	131.3	6.5E		
NOV 15	15 52 17.2	-21 -19 -6.9	1.42795	0.46670	-7.312	-0.7	4.7	0.980	-0.4	105.8	19.0	136.8	7.7E		
NOV 17	16 5 10.2	-22 -7 -51.6	1.41840	0.46623	-9.231	-0.6	4.7	0.973	-0.6	115.0	17.8	142.3	8.7E		
NOV 19	16 18 7.9	-22 -52 -13.3	1.40662	0.46466	-11.167	-0.6	4.8	0.966	-0.7	124.2	16.5	147.9	9.8E		
NOV 21	16 31 9.9	-23 -32 -0.9	1.39259	0.46197	-13.132	-0.5	4.8	0.957	-0.9	133.4	15.2	153.5	10.9E		
NOV 23	16 44 15.5	-24 -7 -3.6	1.37627	0.45819	-15.140	-0.5	4.9	0.948	-1.1	142.6	13.8	159.2	11.9E		
NOV 25	16 57 24.1	-24 -37 -10.3	1.35760	0.45333	-17.203	-0.5	5.0	0.936	-1.3	151.9	12.4	164.9	12.9E		
NOV 27	17 10 34.1	-25 -2 -10.1	1.33651	0.44743	-19.333	-0.5	5.0	0.923	-1.5	161.2	10.9	170.9	13.9E		
NOV 29	17 23 43.8	-25 -21 -52.6	1.31292	0.44051	-21.540	-0.5	5.1	0.908	-1.7	170.4	9.4	177.0	14.9E		
DEC 1	17 36 50.8	-25 -36 -7.9	1.28672	0.43263	-23.829	-0.5	5.2	0.891	-1.9	179.8	7.9	183.3	15.9E		
DEC 3	17 49 51.7	-25 -44 -47.6	1.25784	0.42384	-26.203	-0.5	5.3	0.871	-2.1	189.1	6.4	189.8	16.8E		
DEC 5	18 2 42.3	-25 -47 -45.2	1.22617	0.41423	-28.657	-0.5	5.5	0.847	-2.4	198.5	4.9	196.7	17.6E		
DEC 7	18 15 17.3	-25 -44 -57.2	1.19162	0.40390	-31.177	-0.5	5.6	0.818	-2.6	208.0	3.4	203.9	18.4E		
DEC 9	18 27 29.7	-25 -36 -24.6	1.15414	0.39297	-33.730										

1997 MERCURY

Geocentric Planetary Ephemeris

1997 MERCURY

Date (0 DT)	RA [Mean] (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	18 50 10.4	-20-19-48.0	0.67330	0.31216	-3.787	4.9	10.0	0.005	-8.2	359.6	359.3	341.7	2.6W
JAN 4	18 38 39.5	-20 -8-22.0	0.67497	0.31800	6.562	3.9	10.0	0.022	-8.4	14.6	0.6	353.8	5.5W
JAN 6	18 28 25.9	-20 -2-48.3	0.68792	0.32578	15.596	2.7	9.8	0.068	-8.4	29.4	1.9	5.4	9.6W
JAN 8	18 20 28.9	-20 -3-17.3	0.71025	0.33509	22.740	1.8	9.5	0.132	-8.4	43.5	2.8	16.5	13.3W
JAN 10	18 15 16.9	-20 -9-27.5	0.73966	0.34553	27.876	1.1	9.1	0.206	-8.2	57.0	3.5	26.8	16.5W
JAN 12	18 12 52.7	-20-20-23.7	0.77393	0.35669	31.203	0.7	8.7	0.282	-8.0	69.9	3.8	36.6	19.0W
JAN 14	18 13 3.2	-20-34-48.2	0.81117	0.36823	33.061	0.4	8.3	0.354	-7.7	82.1	3.7	45.8	21.0W
JAN 16	18 15 28.6	-20-51-15.5	0.84988	0.37983	33.805	0.2	7.9	0.422	-7.5	93.8	3.4	54.3	22.4W
JAN 18	18 19 47.7	-21 -8-23.7	0.88896	0.39123	33.747	0.1	7.6	0.482	-7.3	105.0	2.9	62.4	23.4W
JAN 20	18 25 41.0	-21-25 -0.8	0.92763	0.40224	33.130	0.0	7.3	0.536	-7.1	115.9	2.2	70.1	24.1W
JAN 22	18 32 51.6	-21-40 -6.2	0.96535	0.41267	32.139	0.0	7.0	0.584	-6.9	126.5	1.3	77.3	24.4W
JAN 24	18 41 5.6	-21-52-50.7	1.00178	0.42240	30.906	-0.1	6.7	0.626	-6.7	136.8	0.4	84.2	24.5W
JAN 26	18 50 11.3	-22 -2-34.9	1.03670	0.43132	29.526	-0.1	6.5	0.663	-6.5	147.0	359.3	90.8	24.5W
JAN 28	18 59 59.7	-22 -8-47.8	1.06997	0.43935	28.063	-0.1	6.3	0.696	-6.3	157.0	358.1	97.1	24.2W
JAN 30	19 10 23.3	-22-11 -4.6	1.10152	0.44642	26.560	-0.1	6.1	0.725	-6.2	166.8	356.8	103.3	23.9W
FEB 1	19 21 15.9	-22 -9 -6.3	1.13133	0.45248	25.046	-0.1	5.9	0.751	-6.1	176.6	355.5	109.2	23.4W
FEB 3	19 32 32.7	-22 -2-37.6	1.15939	0.45750	23.539	-0.1	5.8	0.774	-5.9	186.2	354.2	115.0	22.8W
FEB 5	19 44 9.7	-21-51-26.8	1.18572	0.46145	22.049	-0.1	5.7	0.796	-5.8	195.8	352.8	120.7	22.2W
FEB 7	19 56 3.4	-21-35-24.5	1.21034	0.46431	20.580	-0.1	5.6	0.815	-5.7	205.3	351.5	126.3	21.5W
FEB 9	20 8 11.2	-21-14-23.5	1.23327	0.46606	19.134	-0.1	5.5	0.833	-5.6	214.7	350.1	131.9	20.7W
FEB 11	20 20 30.7	-20-48-18.0	1.25455	0.46670	17.710	-0.2	5.4	0.849	-5.5	224.0	348.7	137.4	19.8W
FEB 13	20 33 0.4	-20-17 -3.4	1.27420	0.46622	16.300	-0.2	5.3	0.865	-5.4	233.3	347.3	143.0	18.9W
FEB 15	20 45 38.6	-19-40-36.2	1.29221	0.46462	14.897	-0.2	5.2	0.879	-5.3	242.6	345.9	148.5	17.9W
FEB 17	20 58 24.2	-18-58-53.7	1.30861	0.46192	13.489	-0.3	5.1	0.893	-5.2	251.8	344.6	154.1	16.8W
FEB 19	21 11 16.4	-18-11-54.0	1.32337	0.45812	12.063	-0.3	5.1	0.906	-5.1	260.9	343.3	159.8	15.7W
FEB 21	21 24 14.7	-17-19-35.5	1.33647	0.45325	10.602	-0.4	5.0	0.918	-5.0	269.9	342.0	165.6	14.5W
FEB 23	21 37 18.5	-16-21-57.3	1.34785	0.44733	9.088	-0.5	5.0	0.930	-4.9	278.9	340.8	171.5	13.3W
FEB 25	21 50 27.7	-15-18-59.1	1.35744	0.44039	7.500	-0.6	5.0	0.942	-4.9	287.9	339.6	177.6	12.0W
FEB 27	22 3 42.4	-14-10-41.1	1.36514	0.43250	5.811	-0.7	4.9	0.953	-4.8	296.7	338.5	183.9	10.7W
MAR 1	22 17 2.6	-12-57 -4.6	1.37082	0.42370	3.994	-0.8	4.9	0.964	-4.7	305.5	337.4	190.5	9.2W
MAR 3	22 30 28.7	-11-38-11.8	1.37431	0.41408	2.015	-1.0	4.9	0.973	-4.6	314.3	336.4	197.3	7.7W
MAR 5	22 44 1.0	-10-14 -7.0	1.37541	0.40373	-0.162	-1.1	4.9	0.982	-4.5	322.9	335.5	204.5	6.2W
MAR 7	22 57 39.8	-8-44-56.5	1.37385	0.39280	-2.577	-1.3	4.9	0.990	-4.5	331.5	334.6	212.1	4.6W
MAR 9	23 11 25.4	-7-10-50.4	1.36935	0.38144	-5.271	-1.5	4.9	0.995	-4.4	340.0	333.9	220.1	3.0W
MAR 11	23 25 17.8	-5-32 -3.5	1.36156	0.36986	-8.280	-1.7	4.9	0.998	-4.3	348.5	333.2	228.6	1.8E
MAR 13	23 39 16.7	-3-48-57.2	1.35010	0.35830	-11.633	-1.7	5.0	0.998	-4.3	356.8	332.6	237.7	1.9E
MAR 15	23 53 21.3	-2 -2 -2.1	1.33456	0.34706	-15.345	-1.7	5.0	0.993	-4.2	5.2	332.1	247.4	3.4E
MAR 17	0 7 29.6	0-12 -0.6	1.31453	0.33650	-19.396	-1.6	5.1	0.981	-4.2	13.5	331.8	257.7	5.3E
MAR 19	0 21 38.6	1 40 10.4	1.28966	0.32700	-23.723	-1.5	5.2	0.962	-4.1	21.7	331.5	268.6	7.2E
MAR 21	0 35 43.7	3 33 17.3	1.25968	0.31899	-28.203	-1.4	5.3	0.933	-4.1	30.0	331.4	280.1	9.2E
MAR 23	0 49 38.3	5 25 49.7	1.22453	0.31285	-32.645	-1.3	5.5	0.894	-4.1	38.3	331.4	292.2	11.0E
MAR 25	1 3 14.2	7 16 2.1	1.18439	0.30895	-36.804	-1.2	5.7	0.844	-4.1	46.8	331.5	304.6	13.0E
MAR 27	1 16 21.3	9 1 59.4	1.13973	0.30751	-40.412	-1.0	5.9	0.784	-4.1	55.3	331.7	317.3	14.7E
MAR 29	1 28 48.4	10 41 45.5	1.09134	0.30863	-43.222	-0.9	6.2	0.715	-4.1	64.1	332.0	330.0	16.2E
MAR 31	1 40 23.9	12 13 31.7	1.04026	0.31224	-45.061	-0.7	6.5	0.640	-4.1	73.2	332.3	342.5	17.5E
APR 2	1 50 56.8	13 35 43.8	0.98765	0.31811	-45.852	-0.5	6.8	0.562	-4.2	82.5	332.7	354.6	18.4E
APR 4	2 0 16.8	14 47 6.3	0.93473	0.32591	-45.613	-0.2	7.2	0.483	-4.2	92.2	333.1	6.2	19.0E
APR 6	2 8 15.3	15 46 41.3	0.88264	0.33525	-44.429	0.1	7.6	0.407	-4.2	102.3	333.4	17.2	19.2E
APR 8	2 14 45.2	16 33 46.4	0.83241	0.34570	-42.421	0.4	8.1	0.335	-4.2	112.9	333.8	27.6	19.0E
APR 10	2 19 41.4	17 7 51.2	0.78490	0.35687	-39.718	0.8	8.6	0.268	-4.2	123.8	334.0	37.3	18.4E
APR 12	2 23 1.0	17 28 34.8	0.74086	0.36841	-36.437	1.3	9.1	0.207	-4.2	135.2	334.2	46.5	17.3E
APR 14	2 24 43.9	17 35 46.2	0.70090	0.38000	-32.682	1.8	9.6	0.152	-4.1	147.1	334.3	55.0	15.8E
APR 16	2 24 53.2	17 29 28.6	0.66550	0.39140	-28.544	2.3	10.1	0.106	-4.0	159.4	334.3	63.1	13.9E
APR 18	2 23 36.3	17 10 6.2	0.63506	0.40240	-24.106	3.0	10.6	0.067	-3.8	172.1	334.2	70.8	11.5E
APR 20	2 21 4.6	16 38 32.5	0.60988	0.41282	-19.456	3.7	11.0	0.036	-3.6	185.1	334.1	78.0	8.9E
APR 22	2 17 34.0	15 56 18.6	0.59014	0.42254	-14.688	4.5	11.4	0.015	-3.4	198.5	333.9	84.9	5.9E
APR 24	2 13 23.9	15 5 35.9	0.57594	0.43145	-9.905	5.4	11.7	0.003	-3.1	212.0	333.7	91.5	2.8E
APR 26	2 8 55.7	14 9 12.5	0.56721	0.43946	-5.214	5.9	11.9	0.001	-2.7	225.7	333.5	97.8	1.4W
APR 28	2 4 30.9	13 10 20.0	0.56380	0.44651	-0.719	5.1	11.9	0.007	-2.3	239.4	333.3	104.0	4.2W
APR 30	2 0 29.3	12 12 15.0	0.56543	0.45256	3.492	4.3	11.9	0.021	-1.9	253.0	333.1	109.9	7.4W
MAY 2	1 57 7.5	11 17 58.9	0.57172	0.45757	7.358	3.6	11.8	0.042	-1.4	266.4	333.0	115.7	10.5W
MAY 4	1 54 37.7	10 30 2.4	0.58227	0.46150	10.846	3.1	11.6	0.068	-1.0	279.6	332.9	121.4	13.3W
MAY 6	1 53 8.2	9 50 16.6	0.59662	0.46434	13.949	2.6	11.3	0.097	-0.6	292.5	332.8	127.0	15.8W
MAY 8	1 52 43.3	9 19 52.1	0.61435	0.46608	16.685	2.2	11.0	0.130	-0.2	305.1	332.8	132.6	18.1W
MAY 10	1 53 24.3	8 59 23.6	0.63503	0.46670	19.084	1.9	10.6	0.164	0.2	317.4	332.9	138.1	20.0W
MAY 12	1 55 10.4	8 48 56.7	0.65831	0.46620	21.185	1.6	10.2	0.199	0.6	329.3	332.9	143.6	21.6W
MAY 14	1 57 59.5	8 48 16.2	0.68387	0.46459	23.027	1.4	9.8	0.234	0.9	341.0	333.0	149.2	22.9W
MAY 16	2 1 48.7	8 56 53.1	0.71142	0.46187	24.647	1.2	9.5	0.270	1.2	352.4	333.2	154.8	23.9W
MAY 18	2 6 34.7	9 14 9.9	0.74073	0.45805	26.081	1.0	9.1	0.305	1.4	3.4	333.4	160.5	24.6W
MAY 20	2 12 14.8	9 39 24.4	0.77160	0.45316	27.353	0.8	8.7	0.340	1.7	14.3	333.7	166.3	25.1W
MAY 22	2 18 46.0	10 11 53.1	0.80387	0.44723	28.486	0.7	8.4	0.376	1.9	24.9	334.0	172.2	25.3W
MAY 24	2 26 6.4	10 50 51.9	0.83736	0.44028	29.490	0.6	8.0	0.411	2.1	35.2	334.4	178.3	25.3W
MAY 26	2 34 14.2	11 35 37.0	0.87194	0.43237	30.371	0.4	7.7	0.448	2.3	45.4	334.9	184.6	25.1W
MAY 28	2 43 8.4	12 25 25.3	0.90747	0.42356	31.122	0.3	7.4	0.484	2.5	55.4	335.5	191.2	24.7W
MAY 30	2 52 48.6	13 19 33.5	0.94379	0.41392	31.730	0.2	7.1	0.522	2.6	65.1	336.1	198.0	24.1W
JUN 1	3 3 14.8	14 17 17.8	0.98071	0.40357	32.171	0.0	6.9	0.561	2.7	74.7	336.9	205.2	23.3W
JUN 3	3 14 27.7	15 17 53.1	1.01803	0.39263	32.407	-0.1	6.6	0.601	2.8	84.1	337.7	212.8	22.8W
JUN 5	3 26 28.5	16 20 31.0	1.05548	0.38127	32.390	-0.2	6.4	0.643	2.9	93.3	338.7	220.8	21.1W
JUN 7	3 39 18.4	17 24 19.0	1.09273	0.36968	32.053	-0.4	6.2	0.686	3.0	102.3	339.8	229.4	19.8W
JUN 9	3 52 59.1	18 28 18.4	1.12938	0.35812	31.319	-0.5	6.0	0.731	3.1	111.1	341.0	238.4	18.2W
JUN 11	4 7 31.9	19 31 22.7	1.16490	0.34690	30.099	-0.7							

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Geocentric Planetary Ephemeris

1997 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	7 7 57.2	24 13 9.4	1.31532	0.32604	-8.928	-1.5	5.1	0.968	4.2	200.5	2.9	6.9	6.5E		
JUL 3	7 26 7.0	23 46 46.0	1.30291	0.33540	-12.468	-1.3	5.2	0.944	4.3	208.6	5.0	17.9	8.7E		
JUL 5	7 43 38.6	23 11 15.8	1.28674	0.34586	-15.429	-1.1	5.2	0.917	4.5	216.8	7.1	28.3	10.8E		
JUL 7	8 0 27.5	22 27 44.2	1.26748	0.35704	-17.844	-0.9	5.3	0.887	4.7	225.2	9.0	38.0	12.8E		
JUL 9	8 16 31.5	21 37 18.2	1.24572	0.36858	-19.773	-0.7	5.4	0.856	4.9	233.6	10.9	47.2	14.7E		
JUL 11	8 31 49.6	20 41 2.7	1.22197	0.38018	-21.287	-0.6	5.5	0.825	5.1	242.2	12.6	55.8	16.5E		
JUL 13	8 46 21.9	19 39 58.3	1.19667	0.39157	-22.460	-0.4	5.6	0.794	5.3	250.9	14.1	63.8	18.1E		
JUL 15	9 0 9.3	18 35 1.0	1.17019	0.40256	-23.356	-0.3	5.7	0.764	5.5	259.7	15.6	71.5	19.6E		
JUL 17	9 13 12.7	17 27 1.8	1.14280	0.41298	-24.032	-0.2	5.9	0.735	5.7	268.7	16.9	78.7	21.0E		
JUL 19	9 25 33.5	16 16 47.1	1.11474	0.42268	-24.536	-0.1	6.0	0.706	5.9	277.8	18.1	85.6	22.3E		
JUL 21	9 37 12.7	15 4 59.5	1.08617	0.43157	-24.904	0.0	6.2	0.678	6.2	287.0	19.2	92.2	23.4E		
JUL 23	9 48 11.3	13 52 18.4	1.05725	0.43957	-25.167	0.1	6.4	0.650	6.4	296.4	20.3	98.5	24.4E		
JUL 25	9 58 30.0	12 39 20.9	1.02807	0.44661	-25.347	0.1	6.5	0.622	6.7	305.9	21.2	104.6	25.2E		
JUL 27	10 8 9.0	11 26 42.7	0.99872	0.45265	-25.460	0.2	6.7	0.595	6.9	315.5	22.0	110.6	26.0E		
JUL 29	10 17 8.3	10 14 59.1	0.96927	0.45764	-25.512	0.3	6.9	0.566	7.2	325.2	22.7	116.4	26.5E		
JUL 31	10 25 27.2	9 4 45.7	0.93980	0.46155	-25.506	0.3	7.2	0.538	7.5	335.2	23.4	122.1	27.0E		
AUG 2	10 33 4.4	7 56 39.8	0.91037	0.46438	-25.437	0.4	7.4	0.509	7.7	345.2	23.9	127.7	27.2E		
AUG 4	10 39 58.2	6 51 20.6	0.88107	0.46609	-25.293	0.5	7.6	0.478	8.0	355.5	24.4	133.3	27.3E		
AUG 6	10 46 6.0	5 49 31.1	0.85198	0.46670	-25.056	0.5	7.9	0.446	8.3	35.9	24.9	138.8	27.2E		
AUG 8	10 51 24.6	4 51 58.6	0.82323	0.46618	-24.698	0.6	8.2	0.413	8.6	16.6	25.2	144.3	26.9E		
AUG 10	10 55 50.0	3 59 36.2	0.79498	0.46455	-24.185	0.7	8.5	0.378	9.0	27.5	25.5	149.9	26.4E		
AUG 12	10 59 17.9	3 13 23.4	0.76743	0.46182	-23.470	0.8	8.8	0.342	9.3	38.6	25.8	155.5	25.6E		
AUG 14	11 1 43.0	2 34 27.3	0.74085	0.45799	-22.496	1.0	9.1	0.303	9.6	50.1	25.9	161.2	24.6E		
AUG 16	11 3 0.1	2 4 1.6	0.71559	0.45308	-21.191	1.2	9.4	0.263	9.9	61.8	26.0	167.0	23.2E		
AUG 18	11 3 4.2	1 43 25.5	0.69205	0.44713	-19.473	1.4	9.7	0.221	10.2	73.9	26.1	172.9	21.5E		
AUG 20	11 1 51.4	1 33 58.8	0.67079	0.44017	-17.250	1.7	10.0	0.178	10.5	86.4	26.0	179.0	19.5E		
AUG 22	10 59 20.1	1 36 54.1	0.65243	0.43224	-14.428	2.1	10.3	0.136	10.7	99.3	25.9	185.3	17.0E		
AUG 24	10 55 32.6	1 53 4.4	0.63771	0.42341	-10.919	2.6	10.5	0.096	10.9	112.6	25.7	191.9	14.3E		
AUG 26	10 50 36.4	2 22 45.8	0.62748	0.41377	-6.660	3.2	10.7	0.061	11.0	126.2	25.4	198.8	11.3E		
AUG 28	10 44 46.2	3 5 19.2	0.62261	0.40341	-1.637	3.9	10.8	0.032	11.0	140.1	25.0	206.0	8.1E		
AUG 30	10 38 23.9	3 58 53.9	0.62396	0.39246	4.096	4.6	10.8	0.014	10.8	154.3	24.5	213.6	5.2E		
SEP 1	10 31 58.7	5 0 23.6	0.63227	0.38109	10.400	4.9	10.6	0.009	10.5	168.4	24.1	221.6	4.0W		
SEP 3	10 26 3.6	6 5 39.1	0.64810	0.36950	17.055	4.3	10.4	0.019	10.1	182.5	23.6	230.1	5.7W		
SEP 5	10 21 12.6	7 9 57.1	0.67168	0.35795	23.776	3.4	10.0	0.045	9.6	196.4	23.2	239.2	8.5W		
SEP 7	10 17 55.7	8 8 37.3	0.70291	0.34672	30.248	2.5	9.6	0.088	9.0	209.8	22.9	248.9	11.3W		
SEP 9	10 16 35.7	8 57 34.2	0.74132	0.33619	36.153	1.7	9.1	0.147	8.4	222.7	22.7	259.2	13.7W		
SEP 11	10 17 26.4	9 33 37.3	0.78608	0.32673	41.195	1.0	8.6	0.219	7.8	235.0	22.8	270.2	15.6W		
SEP 13	10 20 32.1	9 54 37.8	0.83604	0.31877	45.117	0.5	8.0	0.301	7.2	246.7	23.0	281.7	16.9W		
SEP 15	10 25 48.5	9 59 26.8	0.88979	0.31269	47.721	0.0	7.6	0.391	6.6	257.8	23.3	293.8	17.7W		
SEP 17	10 33 4.2	9 47 49.9	0.94573	0.30886	48.898	-0.3	7.1	0.483	6.0	268.4	23.8	306.2	17.9W		
SEP 19	10 42 2.9	9 20 20.7	1.00221	0.30750	48.649	-0.5	6.7	0.573	5.6	278.4	24.4	318.9	17.6W		
SEP 21	10 52 25.5	8 38 13.4	1.05762	0.30870	47.101	-0.7	6.4	0.658	5.1	288.1	25.1	331.6	17.0W		
SEP 23	11 3 52.0	7 43 12.6	1.11061	0.31238	44.488	-0.9	6.1	0.734	4.7	297.4	25.8	344.0	16.0W		
SEP 25	11 16 4.1	6 37 21.1	1.16011	0.31832	41.104	-1.0	5.8	0.799	4.4	306.4	26.4	356.1	14.7W		
SEP 27	11 28 45.6	5 22 47.4	1.20540	0.32618	37.254	-1.0	5.6	0.853	4.1	315.3	27.0	7.7	13.3W		
SEP 29	11 41 43.8	4 1 34.9	1.24611	0.33555	33.201	-1.1	5.4	0.896	3.8	324.1	27.5	18.7	11.8W		
OCT 1	11 54 49.1	2 35 35.2	1.28212	0.34603	29.148	-1.2	5.2	0.929	3.6	332.8	27.9	29.1	10.2W		
OCT 3	12 7 55.0	1 6 24.0	1.31351	0.35722	25.231	-1.2	5.1	0.954	3.3	341.5	28.2	38.8	8.6W		
OCT 5	12 20 57.2	0-24-39.5	1.34050	0.36876	21.530	-1.2	5.0	0.972	3.1	350.2	28.4	47.9	7.0W		
OCT 7	12 33 53.2	-1-56-30.9	1.36336	0.38036	18.082	-1.3	4.9	0.984	2.9	358.9	28.6	56.5	5.4W		
OCT 9	12 46 41.8	-3-28-19.1	1.38238	0.39175	14.892	-1.3	4.9	0.992	2.7	367.6	28.6	64.6	3.9W		
OCT 11	12 59 22.9	-4-59-23.4	1.39786	0.40273	11.949	-1.4	4.8	0.997	2.6	376.4	28.5	72.2	2.5W		
OCT 13	13 11 56.7	-6-29-11.7	1.41008	0.41313	9.233	-1.4	4.8	0.999	2.4	385.2	28.3	79.4	1.2W		
OCT 15	13 24 24.1	-7-57-18.5	1.41928	0.42283	6.715	-1.4	4.7	0.999	2.2	394.0	28.1	86.3	1.2E		
OCT 17	13 36 46.0	-9-23-23.4	1.42567	0.43171	4.368	-1.2	4.7	0.998	2.1	402.9	27.8	92.9	2.3E		
OCT 19	13 49 3.5	-10-47-9.6	1.42943	0.43969	2.163	-1.1	4.7	0.995	1.9	411.9	27.3	99.2	3.6E		
OCT 21	14 1 17.7	-12-8-22.8	1.43071	0.44672	0.074	-1.0	4.7	0.991	1.7	420.9	26.8	105.3	4.8E		
OCT 23	14 13 29.7	-13-26-50.7	1.42964	0.45273	-1.924	-0.8	4.7	0.986	1.6	429.9	26.2	111.3	6.1E		
OCT 25	14 25 40.5	-14-42-22.1	1.42630	0.45771	-3.851	-0.7	4.7	0.981	1.4	439.0	25.6	117.1	7.3E		
OCT 27	14 37 51.0	-15-54-46.6	1.42077	0.46161	-5.727	-0.7	4.7	0.974	1.3	448.1	24.9	122.8	8.5E		
OCT 29	14 50 2.1	-17-3-54.2	1.41309	0.46441	-7.569	-0.6	4.8	0.967	1.1	457.2	24.1	128.4	9.6E		
OCT 31	15 2 14.4	-18-9-35.2	1.40329	0.46611	-9.393	-0.5	4.8	0.959	0.9	466.4	23.2	134.0	10.7E		
NOV 2	15 14 28.2	-19-11-39.7	1.39140	0.46670	-11.214	-0.5	4.8	0.950	0.8	475.6	22.3	139.5	11.8E		
NOV 4	15 26 44.0	-20-9-57.7	1.37739	0.46617	-13.043	-0.4	4.9	0.940	0.6	484.8	21.3	145.0	12.9E		
NOV 6	15 39 1.6	-21-4-18.8	1.36126	0.46452	-14.893	-0.4	4.9	0.929	0.4	494.1	20.2	150.6	13.9E		
NOV 8	15 51 20.6	-21-54-32.1	1.34298	0.46177	-16.773	-0.4	5.0	0.917	0.3	503.4	19.1	156.2	14.9E		
NOV 10	16 3 40.5	-22-40-26.5	1.32250	0.45792	-18.694	-0.3	5.1	0.904	0.1	512.7	17.9	161.9	15.8E		
NOV 12	16 16 0.2	-23-21-50.4	1.29978	0.45300	-20.662	-0.3	5.2	0.888	-0.1	521.9	16.7	167.7	16.7E		
NOV 14	16 28 17.8	-23-58-32.1	1.27475	0.44703	-22.684	-0.3	5.3	0.871	-0.3	531.5	15.5	173.6	17.6E		
NOV 16	16 40 31.3	-24-30-20.0	1.24736	0.44005	-24.763	-0.3	5.4	0.851	-0.5	541.0	14.2	179.7	18.4E		
NOV 18	16 52 37.4	-24-57-2.5	1.21753	0.43211	-26.898	-0.3	5.5	0.829	-0.7	550.5	12.9	186.1	19.2E		
NOV 20	17 4 31.9	-25-18-28.4	1.18521	0.42327	-29.080	-0.3	5.7	0.803	-0.9	560.0	11.6	192.6	19.9E		
NOV 22	17 16 9.3	-25-34-27.8	1.15034	0.41361	-31.291	-0.3	5.8	0.773	-1.2	569.7	10.3	199.5	20.5E		
NOV 24	17 27 22.4	-25-44-52.1	1.11293	0.40324	-33.493	-0.3	6.0	0.738	-1.4	579.4	9.0	206.7	21.1E		
NOV 26	17 38 1.8	-25-49-35.2	1.07300	0.39228	-35.630	-0.3	6.3	0.697	-1.7	589.3	7.8	214.3	21.4E		
NOV 28	17 47 55.4	-25-48-34.7	1.03068	0.38091	-37.610	-0.3	6.5	0.649	-2.0	599.4	6.7	222.4	21.6E		
NOV 30	17 56 48.1	-25-41-52.3	0.98623	0.36932	-39.298	-0.3	6.8	0.594	-2.3	609.7	5.6	230.9	21.6E		
DEC 2	18 4 20.5	-25-29-35.0	0.94009	0.35777	-40.497	-0.2	7.2	0.530	-2.7	620.3	4.7	240.0	21.2E		
DEC 4	18 10 9.3	-25-11-55.2	0.89297	0.34655	-40.934	0.0	7.5	0.456	-3.1	631.3	4.0	249.7	20.5E		
DEC 6	18 13 47.3	-24-49-9.9	0.84595	0.33603	-40.252	0.2	8.0	0.375	-3.5	642.8	3.6	260.0	19.3E		
DEC 8	18 14 45.8	-24-													

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	17 10 49.0	-20-24-28.5	0.89912	0.36894	37.205	0.0	7.5	0.483	-6.0	97.4	11.0	48.7	22.0W	
JAN 3	17 16 31.1	-20-46-40.8	0.94173	0.38054	36.480	-0.1	7.1	0.545	-5.9	108.3	10.3	57.3	22.7W	
JAN 5	17 23 38.7	-21-10-39.6	0.98320	0.39192	35.251	-0.2	6.8	0.600	-5.8	118.8	9.5	65.4	23.0W	
JAN 7	17 31 55.6	-21-34-53.9	1.02305	0.40290	33.704	-0.2	6.6	0.647	-5.7	129.1	8.5	73.0	23.1W	
JAN 9	17 41 8.5	-21-58-10.9	1.06100	0.41329	31.972	-0.2	6.3	0.688	-5.6	139.2	7.5	80.2	22.9W	
JAN 11	17 51 7.3	-22-19-33.1	1.09688	0.42297	30.144	-0.2	6.1	0.724	-5.5	149.2	6.3	87.1	22.6W	
JAN 13	18 1 43.6	-22-38-15.3	1.13063	0.43184	28.277	-0.2	6.0	0.755	-5.5	159.0	5.1	93.7	22.2W	
JAN 15	18 12 50.8	-22-53-42.0	1.16221	0.43981	26.410	-0.2	5.8	0.782	-5.4	168.6	3.7	100.0	21.7W	
JAN 17	18 24 23.8	-23 -5-24.9	1.19165	0.44682	24.565	-0.2	5.6	0.806	-5.4	178.2	2.4	106.1	21.1W	
JAN 19	18 36 18.4	-23-13 -1.6	1.21898	0.45282	22.755	-0.2	5.5	0.827	-5.3	187.8	0.9	112.1	20.4W	
JAN 21	18 48 31.1	-23-16-14.0	1.24424	0.45778	20.985	-0.2	5.4	0.846	-5.3	197.2	359.5	117.9	19.6W	
JAN 23	19 0 59.0	-23-14-47.5	1.26748	0.46166	19.258	-0.2	5.3	0.864	-5.2	206.6	358.0	123.5	18.8W	
JAN 25	19 13 39.9	-23 -8-30.2	1.28875	0.46445	17.568	-0.2	5.2	0.879	-5.2	216.0	356.5	129.2	17.9W	
JAN 27	19 26 31.7	-22-57-12.4	1.30809	0.46613	15.911	-0.3	5.1	0.893	-5.2	225.3	354.9	134.7	17.0W	
JAN 29	19 39 32.6	-22-40-45.7	1.32552	0.46670	14.279	-0.3	5.1	0.906	-5.1	234.5	353.4	140.2	16.1W	
JAN 31	19 52 41.3	-22-19 -3.5	1.34108	0.46615	12.665	-0.3	5.0	0.918	-5.1	243.7	351.9	145.8	15.1W	
FEB 2	20 5 56.5	-21-51-59.9	1.35479	0.46448	11.056	-0.4	5.0	0.929	-5.1	252.9	350.3	151.3	14.0W	
FEB 4	20 19 17.3	-21-19-30.1	1.36663	0.46171	9.441	-0.5	4.9	0.939	-5.0	262.0	348.8	156.9	12.9W	
FEB 6	20 32 42.8	-20-41-30.0	1.37659	0.45785	7.804	-0.5	4.9	0.949	-5.0	271.1	347.3	162.6	11.8W	
FEB 8	20 46 12.4	-19-57-56.2	1.38465	0.45291	6.128	-0.6	4.9	0.958	-5.0	280.1	345.9	168.4	10.6W	
FEB 10	20 59 45.6	-19 -8-46.0	1.39073	0.44693	4.392	-0.7	4.8	0.967	-5.0	289.1	344.5	174.4	9.4W	
FEB 12	21 13 22.0	-18-13-57.5	1.39477	0.43993	2.574	-0.8	4.8	0.975	-4.9	298.0	343.1	180.5	8.1W	
FEB 14	21 27 1.3	-17-13-29.1	1.39664	0.43198	0.649	-0.9	4.8	0.982	-4.9	306.8	341.8	186.8	6.8W	
FEB 16	21 40 43.5	-16 -7-20.6	1.39622	0.42312	-1.412	-1.1	4.8	0.988	-4.9	315.6	340.5	193.4	5.4W	
FEB 18	21 54 28.3	-14-55-32.9	1.39332	0.41346	-3.638	-1.2	4.8	0.993	-4.9	324.4	339.3	200.3	4.1W	
FEB 20	22 8 15.6	-13-38 -9.0	1.38774	0.40307	-6.065	-1.4	4.8	0.996	-4.9	333.1	338.1	207.5	2.8W	
FEB 22	22 22 5.2	-12-15-14.4	1.37923	0.39211	-8.726	-1.5	4.9	0.998	-4.9	341.7	337.0	215.1	2.0E	
FEB 24	22 35 56.5	-10-46-58.5	1.36749	0.38073	-11.654	-1.6	4.9	0.997	-4.9	350.3	336.0	223.1	2.3E	
FEB 26	22 49 48.8	-9-13-35.9	1.35220	0.36914	-14.878	-1.5	5.0	0.993	-4.9	358.8	335.1	231.7	3.5E	
FEB 28	23 3 40.7	-7-35-28.9	1.33301	0.35759	-18.411	-1.5	5.0	0.984	-4.9	7.2	334.3	240.8	5.1E	
MAR 2	23 17 29.9	-5-53 -9.5	1.30956	0.34638	-22.245	-1.4	5.1	0.970	-4.9	15.7	333.5	250.5	6.8E	
MAR 4	23 31 13.1	-4 -7-23.3	1.28153	0.33588	-26.334	-1.3	5.2	0.948	-4.9	24.1	332.9	260.9	8.6E	
MAR 6	23 44 45.5	-2-19-12.0	1.24868	0.32646	-30.584	-1.3	5.4	0.918	-5.0	32.5	332.4	271.8	10.4E	
MAR 8	23 58 0.3	0-29-56.4	1.21089	0.31855	-34.836	-1.2	5.6	0.878	-5.0	41.0	332.0	283.4	12.1E	
MAR 10	0 10 48.8	1 18 42.5	1.16829	0.31254	-38.870	-1.1	5.8	0.826	-5.1	49.6	331.7	295.5	13.8E	
MAR 12	0 23 0.2	3 4 45.5	1.12129	0.30878	-42.417	-1.0	6.0	0.764	-5.2	58.3	331.5	307.9	15.3E	
MAR 14	0 34 22.3	4 45 59.8	1.07061	0.30750	-45.201	-0.8	6.3	0.692	-5.3	67.3	331.3	320.6	16.6E	
MAR 16	0 44 41.7	6 20 7.5	1.01726	0.30878	-46.985	-0.7	6.6	0.612	-5.5	76.6	331.3	333.3	17.6E	
MAR 18	0 53 45.2	7 44 54.2	0.96251	0.31254	-47.620	-0.4	7.0	0.528	-5.6	86.2	331.3	345.8	18.3E	
MAR 20	1 1 20.5	8 58 16.9	0.90771	0.31854	-47.058	-0.1	7.4	0.443	-5.8	96.2	331.4	357.9	18.5E	
MAR 22	1 7 17.6	9 58 28.9	0.85423	0.32645	-45.350	0.2	7.9	0.360	-6.0	106.7	331.4	9.4	18.3E	
MAR 24	1 11 28.8	10 44 2.4	0.80334	0.33587	-42.612	0.6	8.4	0.282	-6.2	117.7	331.5	20.4	17.6E	
MAR 26	1 13 50.6	11 13 50.1	0.75612	0.34637	-38.994	1.1	8.9	0.211	-6.3	129.2	331.5	30.7	16.5E	
MAR 28	1 14 23.6	11 27 8.8	0.71352	0.35758	-34.658	1.7	9.4	0.148	-6.5	141.3	331.5	40.4	14.8E	
MAR 30	1 13 13.5	11 23 46.3	0.67626	0.36913	-29.763	2.4	9.9	0.096	-6.5	153.9	331.5	49.6	12.6E	
APR 1	1 10 32.2	11 4 11.3	0.64490	0.38072	-24.472	3.2	10.4	0.055	-6.6	166.9	331.5	58.1	10.0E	
APR 3	1 6 37.2	10 29 44.8	0.61980	0.39210	-18.950	4.0	10.9	0.025	-6.5	180.3	331.4	66.2	7.1E	
APR 5	1 1 51.2	9 42 45.5	0.60112	0.40306	-13.370	4.9	11.2	0.008	-6.4	194.0	331.3	73.8	4.1E	
APR 7	0 56 39.9	8 46 27.0	0.58885	0.41345	-7.903	5.4	11.4	0.003	-6.2	207.8	331.3	81.0	2.6W	
APR 9	0 51 29.6	7 44 41.2	0.58275	0.42312	-2.707	4.9	11.5	0.009	-5.9	221.7	331.3	87.9	4.6W	
APR 11	0 46 44.6	6 41 32.6	0.58243	0.43197	2.089	4.1	11.6	0.025	-5.6	235.6	331.3	94.5	7.7W	
APR 13	0 42 44.8	5 40 50.4	0.58737	0.43992	6.398	3.4	11.5	0.049	-5.1	249.2	331.3	100.8	10.9W	
APR 15	0 39 44.5	4 45 45.6	0.59699	0.44692	10.181	2.9	11.3	0.078	-4.7	262.6	331.4	106.9	13.8W	
APR 17	0 37 52.6	3 58 39.8	0.61068	0.45290	13.437	2.4	11.0	0.112	-4.2	275.6	331.4	112.8	16.5W	
APR 19	0 37 12.8	3 21 3.5	0.62783	0.45784	16.196	2.0	10.7	0.148	-3.8	288.4	331.4	118.7	18.9W	
APR 21	0 37 45.5	2 53 43.0	0.64792	0.46171	18.511	1.7	10.4	0.185	-3.3	300.7	331.4	124.3	20.9W	
APR 23	0 39 27.9	2 36 50.4	0.67044	0.46448	20.440	1.4	10.0	0.223	-2.8	312.8	331.4	130.0	22.6W	
APR 25	0 42 16.3	2 30 13.9	0.69501	0.46615	22.045	1.2	9.7	0.260	-2.4	324.5	331.4	135.5	24.0W	
APR 27	0 46 5.6	2 33 26.5	0.72127	0.46670	23.383	1.0	9.3	0.296	-2.0	335.9	331.4	141.0	25.0W	
APR 29	0 50 51.2	2 45 52.7	0.74894	0.46613	24.506	0.9	9.0	0.331	-1.6	347.0	331.5	146.6	25.8W	
MAY 1	0 56 28.1	3 6 53.6	0.77781	0.46445	25.454	0.8	8.6	0.365	-1.3	357.9	331.5	152.1	26.4W	
MAY 3	1 2 52.4	3 35 49.2	0.80769	0.46166	26.260	0.6	8.3	0.399	-0.9	8.6	331.6	157.7	26.7W	
MAY 5	1 10 0.5	4 12 0.3	0.83843	0.45778	26.948	0.5	8.0	0.432	-0.6	19.0	331.6	163.4	26.7W	
MAY 7	1 17 49.4	4 54 49.7	0.86990	0.45283	27.535	0.4	7.7	0.464	-0.3	29.2	331.8	169.2	26.6W	
MAY 9	1 26 17.0	5 43 41.8	0.90200	0.44683	28.029	0.3	7.5	0.496	0.0	39.2	332.0	175.2	26.3W	
MAY 11	1 35 21.6	6 38 2.8	0.93462	0.43982	28.433	0.3	7.2	0.529	0.2	49.1	332.2	181.3	25.8W	
MAY 13	1 45 2.4	7 37 20.4	0.96765	0.43185	28.739	0.2	7.0	0.561	0.5	58.8	332.5	187.6	25.1W	
MAY 15	1 55 19.0	8 41 2.9	1.00097	0.42298	28.933	0.1	6.7	0.594	0.7	68.3	332.9	194.2	24.3W	
MAY 17	2 6 11.6	9 48 38.7	1.03444	0.41330	28.994	0.0	6.5	0.628	0.9	77.7	333.4	201.1	23.3W	
MAY 19	2 17 41.0	10 59 35.0	1.06788	0.40291	28.887	-0.2	6.3	0.662	1.1	86.9	334.0	208.3	22.1W	
MAY 21	2 29 48.5	12 13 17.3	1.10109	0.39194	28.570	-0.3	6.1	0.698	1.3	96.0	334.7	215.9	20.8W	
MAY 23	2 42 35.6	13 29 7.6	1.13378	0.38055	27.986	-0.4	5.9	0.735	1.4	104.9	335.4	224.0	19.4W	
MAY 25	2 56 4.3	14 46 22.8	1.16562	0.36896	27.070	-0.5	5.8	0.773	1.6	113.6	336.4	232.6	17.8W	
MAY 27	3 10 16.4	16 4 13.3	1.19617	0.35742	25.745	-0.7	5.6	0.811	1.7	122.3	337.4	241.7	16.0W	
MAY 29	3 25 13.7	17 21 41.1	1.22491	0.34622	23.929	-0.9	5.5	0.850	1.9	130.7	338.6	251.4	14.1W	
MAY 31	3 40 57.3	18 37 37.9	1.25124	0.33573	21.544	-1.1	5.4	0.887	2.0	139.1	340.0	261.7	12.1W	
JUN 2	3 57 27.3	19 50 44.8	1.27445	0.32633	18.532	-1.3	5.3	0.922	2.2	147.3	341.5	272.7	9.9W	
JUN 4	4 14 41.9	20 59 32.9	1.29381	0.31844	14.878	-1.5	5.2	0.953	2.3	155.3	343.1	284.3	7.7W	
JUN 6	4 32 37.1	22 2 26.7	1.30860	0.31247	10.630	-1.7	5.1	0.977	2.4	163.3	345.0	296.4	5.3W	
JUN 8	4 51 6.5	22 57 49.7	1.31820	0.30875	5.919	-2.0	5.1	0.993	2.6	171.2	346.9	308.9	2.9W	
JUN 10	5 10 0.7	23 44 13.6	1.32219	0.30750	0.947									

1998 MERCURY

Geocentric Planetary Ephemeris

1998 MERCURY

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	8 16 55.9	21 20 47.9	1.08870	0.40322	-27.662	-0.2	6.2	0.679	5.1	271.1	10.9	74.6	21.7E	
JUL 4	8 29 37.3	20 26 16.8	1.05662	0.41360	-27.853	-0.1	6.4	0.645	5.4	280.2	12.3	81.8	22.9E	
JUL 6	8 41 30.3	19 28 50.2	1.02442	0.42325	-27.878	0.0	6.6	0.612	5.7	289.6	13.6	88.7	23.9E	
JUL 8	8 52 35.0	18 29 16.2	0.99227	0.43209	-27.772	0.1	6.8	0.580	6.0	299.1	14.8	95.3	24.8E	
JUL 10	9 2 51.6	17 28 20.5	0.96030	0.44003	-27.557	0.2	7.0	0.549	6.4	308.7	15.9	101.6	25.5E	
JUL 12	9 12 19.8	16 26 47.6	0.92864	0.44701	-27.249	0.3	7.2	0.517	6.7	318.5	16.9	107.7	26.1E	
JUL 14	9 20 58.8	15 25 21.1	0.89738	0.45298	-26.856	0.4	7.5	0.486	7.1	328.5	17.7	113.7	26.5E	
JUL 16	9 28 47.7	14 24 44.8	0.86663	0.45791	-26.378	0.5	7.8	0.454	7.5	338.6	18.5	119.5	26.7E	
JUL 18	9 35 44.9	13 25 43.5	0.83648	0.46176	-25.808	0.6	8.0	0.422	7.8	349.0	19.2	125.2	26.7E	
JUL 20	9 41 48.0	12 29 4.3	0.80705	0.46451	-25.133	0.7	8.3	0.390	8.2	359.5	19.8	130.8	26.5E	
JUL 22	9 46 54.5	11 35 37.2	0.77846	0.46616	-24.330	0.8	8.6	0.356	8.6	10.3	20.2	136.3	26.1E	
JUL 24	9 51 1.0	10 46 15.7	0.75090	0.46669	-23.368	0.9	9.0	0.321	9.1	21.3	20.6	141.9	25.4E	
JUL 26	9 54 4.0	10 1 57.4	0.72455	0.46611	-22.208	1.1	9.3	0.286	9.5	32.6	20.9	147.4	24.5E	
JUL 28	9 55 59.5	9 23 43.8	0.69968	0.46441	-20.800	1.3	9.6	0.249	9.9	44.2	21.1	153.0	23.3E	
JUL 30	9 56 44.0	8 52 39.5	0.67661	0.46161	-19.090	1.5	9.9	0.212	10.3	56.1	21.2	158.6	21.8E	
AUG 1	9 56 14.8	8 29 49.6	0.65572	0.45771	-17.016	1.8	10.3	0.175	10.7	68.4	21.2	164.3	20.0E	
AUG 3	9 54 30.6	8 16 15.6	0.63746	0.45274	-14.512	2.1	10.6	0.138	11.1	81.0	21.1	170.1	17.9E	
AUG 5	9 51 33.1	8 12 48.9	0.62237	0.44673	-11.519	2.5	10.8	0.102	11.4	94.0	20.8	176.0	15.5E	
AUG 7	9 47 27.4	8 20 1.8	0.61105	0.43970	-7.990	3.0	11.0	0.070	11.7	107.2	20.5	182.1	12.8E	
AUG 9	9 42 23.9	8 37 56.6	0.60412	0.43172	-3.904	3.6	11.1	0.043	11.8	120.8	20.0	188.5	10.0E	
AUG 11	9 36 38.7	9 5 56.4	0.60222	0.42284	0.721	4.2	11.2	0.023	11.9	134.6	19.5	195.1	7.2E	
AUG 13	9 30 33.4	9 42 38.7	0.60595	0.41315	5.821	4.7	11.1	0.012	11.8	148.6	18.9	202.0	5.1E	
AUG 15	9 24 34.0	10 25 57.5	0.61579	0.40275	11.285	4.7	10.9	0.012	11.6	162.5	18.3	209.2	4.9W	
AUG 17	9 19 8.8	11 13 12.7	0.63209	0.39177	16.961	4.2	10.6	0.023	11.2	176.3	17.8	216.8	6.7W	
AUG 19	9 14 45.7	12 1 26.0	0.65497	0.38038	22.673	3.4	10.3	0.048	10.8	189.9	17.3	224.9	9.2W	
AUG 21	9 11 49.2	12 47 38.3	0.68439	0.36879	28.231	2.6	9.8	0.085	10.3	203.1	17.0	233.5	11.7W	
AUG 23	9 10 38.3	13 29 3.4	0.72004	0.35724	33.444	1.9	9.3	0.134	9.7	215.8	16.8	242.6	13.9W	
AUG 25	9 11 25.9	14 3 16.0	0.76143	0.34605	38.127	1.3	8.8	0.194	9.1	228.1	16.9	252.3	15.7W	
AUG 27	9 14 18.4	14 28 14.9	0.80784	0.33557	42.093	0.8	8.3	0.264	8.5	239.8	17.1	262.7	17.0W	
AUG 29	9 19 15.8	14 42 22.5	0.85832	0.32620	45.162	0.3	7.8	0.342	7.9	251.0	17.6	273.6	17.8W	
AUG 31	9 26 12.7	14 44 25.3	0.91175	0.31834	47.171	0.0	7.4	0.425	7.3	261.7	18.3	285.2	18.2W	
SEP 2	9 34 59.0	14 33 35.4	0.96683	0.31240	47.992	-0.3	7.0	0.512	6.8	271.9	19.1	297.3	18.0W	
SEP 4	9 45 20.5	14 9 33.3	1.02214	0.30871	47.568	-0.6	6.6	0.597	6.4	281.6	20.0	309.8	17.5W	
SEP 6	9 57 0.5	13 32 31.4	1.07626	0.30751	45.944	-0.8	6.3	0.679	6.0	291.0	21.0	322.5	16.6W	
SEP 8	10 9 40.9	12 43 13.7	1.12788	0.30886	43.270	-0.9	6.0	0.753	5.6	300.1	22.0	335.2	15.3W	
SEP 10	10 23 3.7	11 42 52.5	1.17592	0.31269	39.784	-1.0	5.7	0.817	5.3	309.0	23.1	347.6	13.9W	
SEP 12	10 36 52.7	10 32 59.7	1.21960	0.31876	35.770	-1.1	5.5	0.870	5.0	317.7	24.1	359.7	12.3W	
SEP 14	10 50 54.2	9 15 17.5	1.25847	0.32672	31.503	-1.2	5.3	0.913	4.7	326.2	25.0	11.2	10.6W	
SEP 16	11 4 57.6	7 51 28.0	1.29238	0.33617	27.211	-1.3	5.2	0.944	4.5	334.8	25.8	22.2	8.8W	
SEP 18	11 18 55.5	6 23 6.2	1.32140	0.34671	23.060	-1.4	5.1	0.967	4.3	343.3	26.5	32.5	7.1W	
SEP 20	11 32 42.8	4 51 35.8	1.34576	0.35793	19.149	-1.4	5.0	0.983	4.1	351.8	27.1	42.2	5.3W	
SEP 22	11 46 16.9	3 18 7.4	1.36576	0.36948	15.528	-1.5	4.9	0.992	3.9	0.3	27.6	51.3	3.7W	
SEP 24	11 59 36.4	1 43 39.6	1.38176	0.38107	12.210	-1.5	4.9	0.998	3.8	8.9	28.0	59.8	2.2W	
SEP 26	12 12 41.2	0 8 59.5	1.39409	0.39244	9.182	-1.5	4.8	0.999	3.6	17.6	28.3	67.9	1.4E	
SEP 28	12 25 31.8	-1 25 14.8	1.40308	0.40339	6.420	-1.4	4.8	0.998	3.5	26.3	28.5	75.5	2.1E	
SEP 30	12 38 9.3	-2 58 32.8	1.40902	0.41375	3.892	-1.2	4.8	0.995	3.3	35.0	28.6	82.7	3.5E	
OCT 2	12 50 35.0	-4 30 29.9	1.41216	0.42340	1.565	-1.1	4.8	0.990	3.2	43.8	28.6	89.6	4.9E	
OCT 4	13 2 50.1	-6 0 46.2	1.41271	0.43222	-0.592	-0.9	4.8	0.984	3.0	52.7	28.5	96.1	6.2E	
OCT 6	13 14 56.1	-7 29 5.1	1.41085	0.44015	-2.611	-0.8	4.8	0.977	2.9	61.6	28.3	102.5	7.6E	
OCT 8	13 26 54.3	-8 55 12.9	1.40672	0.44711	-4.519	-0.7	4.8	0.969	2.8	70.6	28.0	108.6	8.9E	
OCT 10	13 38 46.2	-10 18 57.5	1.40045	0.45307	-6.342	-0.6	4.8	0.961	2.6	79.7	27.7	114.5	10.2E	
OCT 12	13 50 32.9	-11 40 8.1	1.39210	0.45798	-8.102	-0.5	4.8	0.951	2.5	88.8	27.3	120.3	11.4E	
OCT 14	14 2 15.3	-12 58 34.4	1.38175	0.46181	-9.820	-0.4	4.9	0.942	2.4	97.9	26.8	126.0	12.5E	
OCT 16	14 13 54.4	-14 14 6.8	1.36943	0.46455	-11.511	-0.4	4.9	0.931	2.2	107.1	26.2	131.6	13.6E	
OCT 18	14 25 30.8	-15 26 35.6	1.35517	0.46618	-13.189	-0.3	5.0	0.920	2.1	116.3	25.6	137.2	14.7E	
OCT 20	14 37 4.9	-16 35 51.0	1.33897	0.46669	-14.869	-0.3	5.0	0.908	2.0	125.6	24.9	142.7	15.7E	
OCT 22	14 48 36.9	-17 41 43.1	1.32082	0.46609	-16.559	-0.3	5.1	0.894	1.8	134.9	24.2	148.2	16.7E	
OCT 24	15 0 6.6	-18 44 1.1	1.30071	0.46438	-18.270	-0.2	5.2	0.880	1.7	144.2	23.3	153.8	17.7E	
OCT 26	15 11 33.4	-19 42 34.0	1.27861	0.46156	-20.008	-0.2	5.3	0.864	1.5	153.6	22.5	159.4	18.6E	
OCT 28	15 22 56.5	-20 37 9.9	1.25448	0.45764	-21.779	-0.2	5.4	0.846	1.3	163.1	21.6	165.1	19.4E	
OCT 30	15 34 14.1	-21 27 35.8	1.22829	0.45266	-23.585	-0.2	5.5	0.827	1.2	172.6	20.6	170.9	20.2E	
NOV 1	15 45 24.1	-22 13 38.1	1.19999	0.44662	-25.424	-0.2	5.6	0.805	1.0	182.2	19.6	176.9	20.9E	
NOV 3	15 56 23.4	-22 55 2.2	1.16955	0.43959	-27.289	-0.2	5.8	0.780	0.8	191.9	18.6	183.0	21.5E	
NOV 5	16 7 7.8	-23 31 32.2	1.13695	0.43159	-29.166	-0.2	5.9	0.753	0.6	201.6	17.6	189.4	22.1E	
NOV 7	16 17 31.7	-24 2 51.5	1.10218	0.42270	-31.033	-0.2	6.1	0.721	0.4	211.4	16.6	196.0	22.5E	
NOV 9	16 27 27.9	-24 28 41.8	1.06528	0.41299	-32.851	-0.2	6.3	0.684	0.2	221.4	15.6	202.8	22.8E	
NOV 11	16 36 47.0	-24 48 43.2	1.02633	0.40258	-34.557	-0.2	6.6	0.642	0.0	231.6	14.6	210.1	22.9E	
NOV 13	16 45 16.7	-25 2 33.7	0.98553	0.39159	-36.058	-0.1	6.8	0.594	-0.2	241.9	13.7	217.7	22.9E	
NOV 15	16 52 41.9	-25 9 47.9	0.94317	0.38020	-37.219	-0.1	7.1	0.539	-0.5	252.5	12.9	225.8	22.5E	
NOV 17	16 58 43.4	-25 9 56.4	0.89975	0.36860	-37.845	0.0	7.5	0.476	-0.8	263.5	12.2	234.4	21.9E	
NOV 19	17 2 58.6	-25 2 23.0	0.85604	0.35706	-37.673	0.2	7.9	0.405	-1.1	274.9	11.8	243.5	20.8E	
NOV 21	17 5 2.1	-24 46 24.0	0.81316	0.34588	-36.362	0.4	8.3	0.326	-1.5	286.7	11.5	253.3	19.2E	
NOV 23	17 4 28.5	-24 21 7.9	0.77263	0.33542	-33.511	0.8	8.7	0.244	-1.9	299.2	11.6	263.6	17.0E	
NOV 25	17 0 58.3	-23 45 45.2	0.73648	0.32606	-28.722	1.5	9.1	0.161	-2.3	312.4	12.0	274.6	14.1E	
NOV 27	16 54 27.6	-22 59 53.7	0.70711	0.31823	-21.734	2.3	9.5	0.086	-2.7	326.3	12.7	286.2	10.4E	
NOV 29	16 45 19.5	-22 4 28.1	0.68707	0.31232	-12.624	3.6	9.8	0.030	-3.1	340.8	13.7	298.3	6.2E	
DEC 1	16 34 30.1	-21 2 37.9	0.67851	0.30867	-1.980	5.2	9.9	0.002	-3.5	355.8	14.9	310.8	1.8E	
DEC 3	16 23 21.9	-20 0 5.5	0.68264	0.30750	9.124	4.5	9.9	0.010	-3.8	10.9	16.0	323.5	3.6W	
DEC 5	16 13 22.9	-19 3 56.0	0.69925	0.30890	19.433	3.0	9.6	0.052	-4.1	25.7	17.0	336.2	8.0W	
DEC 7	16 5 41.7	-18 20 21.4	0.72681	0.31277	27.943	1.8	9.3	0.121	-4.2	39.9	17.8	348.6	11.9W	
DEC 9	16 0 54.5	-17 52 51.1	0.76289	0.31887	34.168	1.0	8.8	0.206						

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	17 28	11.6	-22-46-31.1	1.24412	0.44027	23.905	-0.3	5.4	0.854	-4.4	179.7	9.0	103.4	18.5W
JAN 4	17 40	29.6	-23 -9-47.0	1.27053	0.44722	21.830	-0.3	5.3	0.873	-4.4	189.1	7.5	109.5	17.6W
JAN 6	17 53	4.1	-23-28-58.6	1.29458	0.45315	19.820	-0.3	5.2	0.890	-4.4	198.4	6.1	115.4	16.8W
JAN 8	18 5	52.7	-23-43-47.3	1.31634	0.45804	17.870	-0.4	5.1	0.905	-4.5	207.8	4.6	121.2	15.9W
JAN 10	18 18	53.6	-23-53-58.0	1.33589	0.46186	15.976	-0.4	5.0	0.918	-4.5	217.1	3.0	126.9	15.0W
JAN 12	18 32	5.1	-23-59-17.5	1.35327	0.46458	14.128	-0.4	5.0	0.929	-4.5	226.3	1.4	132.5	14.0W
JAN 14	18 45	25.9	-23-59-34.6	1.36855	0.46619	12.317	-0.4	4.9	0.940	-4.6	235.5	359.8	138.1	13.0W
JAN 16	18 58	54.6	-23-54-39.7	1.38174	0.46669	10.532	-0.5	4.9	0.949	-4.6	244.7	358.2	143.6	12.0W
JAN 18	19 12	30.2	-23-44-24.2	1.39289	0.46608	8.762	-0.5	4.8	0.958	-4.6	253.9	356.6	149.2	11.0W
JAN 20	19 26	11.6	-23-28-40.7	1.40199	0.46434	6.993	-0.6	4.8	0.966	-4.6	263.0	355.0	154.7	9.9W
JAN 22	19 39	57.8	-23 -7-22.5	1.40904	0.46150	5.211	-0.7	4.8	0.973	-4.7	272.1	353.3	160.3	8.8W
JAN 24	19 53	48.1	-22-40-23.6	1.41402	0.45757	3.400	-0.7	4.8	0.979	-4.7	281.1	351.7	166.0	7.7W
JAN 26	20 7	41.6	-22 -7-38.8	1.41689	0.45257	1.545	-0.8	4.7	0.985	-4.7	290.1	350.1	171.8	6.5W
JAN 28	20 21	37.7	-21-29 -3.9	1.41757	0.44652	-0.376	-0.9	4.7	0.989	-4.8	299.1	348.6	177.8	5.3W
JAN 30	20 35	35.7	-20-44-35.1	1.41599	0.43947	-2.385	-1.1	4.8	0.993	-4.8	308.0	347.0	183.9	4.2W
FEB 1	20 49	35.0	-19-54 -9.9	1.41203	0.43146	-4.506	-1.2	4.8	0.996	-4.9	316.9	345.5	190.3	3.1W
FEB 3	21 3	35.0	-18-57-46.7	1.40553	0.42255	-6.766	-1.3	4.8	0.998	-4.9	325.7	344.1	196.9	2.3W
FEB 5	21 17	35.0	-17-55-25.3	1.39634	0.41284	-9.193	-1.4	4.8	0.998	-4.9	334.5	342.7	203.8	2.1E
FEB 7	21 31	34.2	-16-47 -8.0	1.38423	0.40241	-11.817	-1.4	4.9	0.996	-5.0	343.3	341.3	211.0	2.9E
FEB 9	21 45	31.6	-15-33 0.0	1.36896	0.39142	-14.665	-1.3	4.9	0.992	-5.0	351.9	340.0	218.7	4.1E
FEB 11	21 59	25.8	-14-13-11.2	1.35026	0.38002	-17.760	-1.3	5.0	0.984	-5.1	0.6	338.8	226.7	5.5E
FEB 13	22 13	14.9	-12-47-57.2	1.32784	0.36842	-21.116	-1.3	5.1	0.972	-5.2	9.2	337.7	235.3	7.0E
FEB 15	22 26	56.2	-11-17-42.7	1.30139	0.35688	-24.730	-1.2	5.2	0.955	-5.3	17.8	336.6	244.5	8.6E
FEB 17	22 40	25.7	-9-43 -3.5	1.27063	0.34571	-28.570	-1.2	5.3	0.931	-5.4	26.4	335.7	254.2	10.2E
FEB 19	22 53	38.1	-8 -4-51.1	1.23534	0.33526	-32.560	-1.1	5.4	0.899	-5.5	35.0	334.8	264.6	11.8E
FEB 21	23 6	26.4	-6-24-15.9	1.19541	0.32592	-36.571	-1.1	5.6	0.858	-5.6	43.7	334.1	275.6	13.3E
FEB 23	23 18	41.1	-4-42-51.0	1.15093	0.31812	-40.405	-1.0	5.8	0.805	-5.8	52.5	333.4	287.2	14.7E
FEB 25	23 30	10.6	-3 -12-33.7	1.10225	0.31224	-43.808	-0.9	6.1	0.742	-6.0	61.4	332.9	299.3	16.0E
FEB 27	23 40	41.0	-1-25-44.9	1.05002	0.30863	-46.485	-0.8	6.4	0.668	-6.2	70.6	332.5	311.8	17.1E
MAR 1	23 49	57.0	0 4 56.3	0.99525	0.30751	-48.150	-0.6	6.8	0.585	-6.5	80.1	332.1	324.5	17.8E
MAR 3	23 57	42.7	1 26 41.1	0.93926	0.30894	-48.577	-0.4	7.2	0.496	-6.8	90.0	331.9	337.2	18.2E
MAR 5	0 3	43.6	2 36 41.5	0.88356	0.31284	-47.639	0.0	7.6	0.405	-7.1	100.4	331.7	349.7	18.0E
MAR 7	0 7	47.5	3 32 22.0	0.82973	0.31898	-45.330	0.4	8.1	0.317	-7.4	111.3	331.6	362.1	17.7E
MAR 9	0 9	46.9	4 11 30.6	0.77932	0.32699	-41.746	0.9	8.6	0.234	-7.8	122.9	331.5	374.9	16.2E
MAR 11	0 9	40.6	4 32 30.9	0.73370	0.33649	-37.064	1.5	9.2	0.161	-8.1	135.0	331.5	387.2	14.4E
MAR 13	0 7	34.8	4 34 36.4	0.69401	0.34705	-31.514	2.3	9.7	0.100	-8.4	147.7	331.5	399.5	12.1E
MAR 15	0 3	44.6	4 18 5.9	0.66112	0.35828	-25.358	3.1	10.2	0.053	-8.6	161.0	331.6	411.8	9.3E
MAR 17	23 58	33.6	3 44 36.9	0.63554	0.36984	-18.882	4.1	10.6	0.022	-8.7	174.7	331.7	424.1	6.3E
MAR 19	23 52	31.9	2 57 8.5	0.61749	0.38143	-12.376	4.9	10.9	0.007	-8.7	188.7	331.9	436.8	3.8E
MAR 21	23 46	13.0	1 59 47.1	0.60683	0.39279	-6.113	4.9	11.1	0.008	-8.6	202.8	332.1	449.1	3.9W
MAR 23	23 40	9.8	0 57 15.7	0.60317	0.40372	-0.319	4.2	11.2	0.021	-8.4	216.9	332.3	461.4	6.7W
MAR 25	23 34	50.2	0 -5-45.3	0.60584	0.41406	4.846	3.4	11.1	0.046	-8.1	230.9	332.6	473.6	10.0W
MAR 27	23 30	35.1	-1 -5-12.7	0.61407	0.42368	9.300	2.8	11.0	0.078	-7.7	244.6	332.8	485.9	13.2W
MAR 29	23 27	37.7	-1-58 -1.4	0.62703	0.43249	13.033	2.3	10.7	0.116	-7.2	257.9	332.9	498.0	16.1W
MAR 31	23 26	3.7	-2-42 -8.2	0.64391	0.44038	16.085	1.9	10.4	0.157	-6.8	270.9	333.0	510.3	18.7W
APR 2	23 25	53.7	-3-16-25.4	0.66395	0.44732	18.533	1.5	10.1	0.199	-6.3	283.5	333.1	522.6	20.9W
APR 4	23 27	4.1	-3-40-27.4	0.68652	0.45324	20.463	1.3	9.8	0.240	-5.8	295.7	333.0	534.9	22.8W
APR 6	23 29	29.4	-3-54-17.5	0.71106	0.45811	21.966	1.1	9.5	0.281	-5.3	307.5	332.9	547.2	24.3W
APR 8	23 33	2.8	-3-58-17.1	0.73713	0.46191	23.123	0.9	9.1	0.320	-4.8	319.0	332.8	559.5	25.5W
APR 10	23 37	37.4	-3-52-57.1	0.76437	0.46462	24.005	0.8	8.8	0.357	-4.4	330.2	332.7	571.8	26.4W
APR 12	23 43	6.7	-3-38-52.4	0.79250	0.46621	24.671	0.7	8.5	0.392	-4.0	341.2	332.5	584.1	27.0W
APR 14	23 49	24.7	-3-16-38.9	0.82129	0.46669	25.169	0.6	8.2	0.426	-3.6	351.9	332.3	596.4	27.4W
APR 16	23 56	26.1	-2-46-51.3	0.85059	0.46606	25.536	0.5	7.9	0.458	-3.2	2.4	332.1	608.7	27.6W
APR 18	0 4	6.6	-2-10 -2.3	0.88025	0.46431	25.802	0.4	7.6	0.489	-2.8	12.7	331.9	621.0	27.5W
APR 20	0 12	22.4	-1-26-42.0	0.91016	0.46145	25.987	0.3	7.4	0.519	-2.5	22.8	331.7	633.3	27.3W
APR 22	0 21	10.7	0-37-18.3	0.94026	0.45751	26.103	0.3	7.2	0.548	-2.2	32.7	331.6	645.6	26.9W
APR 24	0 30	29.3	0 17 43.0	0.97044	0.45249	26.157	0.2	6.9	0.577	-1.9	42.5	331.5	657.9	26.4W
APR 26	0 40	16.8	1 17 58.2	1.00066	0.44642	26.146	0.1	6.7	0.605	-1.6	52.2	331.4	670.2	25.7W
APR 28	0 50	32.2	2 23 4.8	1.03082	0.43935	26.062	0.1	6.5	0.634	-1.3	61.7	331.5	682.5	24.9W
APR 30	1 1	15.3	3 32 41.1	1.06083	0.43133	25.893	0.0	6.3	0.662	-1.1	71.1	331.5	694.8	23.9W
MAY 2	1 12	26.1	4 46 25.4	1.09060	0.42241	25.617	-0.1	6.2	0.691	-0.8	80.3	331.7	707.1	22.8W
MAY 4	1 24	5.4	6 3 55.7	1.11996	0.41268	25.204	-0.2	6.0	0.721	-0.6	89.4	331.9	719.4	21.6W
MAY 6	1 36	14.3	7 24 48.4	1.14876	0.40225	24.617	-0.3	5.9	0.751	-0.4	98.4	332.3	731.7	20.2W
MAY 8	1 48	54.3	8 48 37.7	1.17675	0.39124	23.810	-0.4	5.7	0.782	-0.2	107.2	332.7	744.0	18.7W
MAY 10	2 2	7.1	10 14 53.7	1.20366	0.37984	22.724	-0.6	5.6	0.814	0.0	116.0	333.2	756.3	17.0W
MAY 12	2 15	54.8	11 43 1.6	1.22912	0.36824	21.292	-0.7	5.5	0.846	0.2	124.5	333.9	768.6	15.3W
MAY 14	2 30	19.4	13 12 19.6	1.25269	0.35671	19.441	-0.9	5.4	0.878	0.4	133.0	334.7	780.9	13.4W
MAY 16	2 45	22.7	14 41 56.8	1.27385	0.34554	17.099	-1.1	5.3	0.909	0.6	141.3	335.6	793.2	11.4W
MAY 18	3 1	6.0	16 10 51.8	1.29198	0.33511	14.203	-1.3	5.2	0.938	0.8	149.6	336.7	805.5	9.2W
MAY 20	3 17	29.3	17 37 51.1	1.30644	0.32579	10.718	-1.5	5.1	0.964	1.0	157.7	338.0	817.8	6.9W
MAY 22	3 34	31.3	19 1 29.6	1.31653	0.31801	6.658	-1.7	5.1	0.984	1.1	165.7	339.4	830.1	4.6W
MAY 24	3 52	8.4	20 20 13.1	1.32164	0.31217	2.105	-2.0	5.1	0.996	1.3	173.6	341.0	842.4	2.2W
MAY 26	4 10	14.7	21 32 23.9	1.32128	0.30859	-2.783	-2.2	5.1	1.000	1.5	181.5	342.7	854.7	0.6E
MAY 28	4 28	41.8	22 36 28.6	1.31519	0.30751	-7.780	-2.0	5.1	0.993	1.7	189.3	344.6	867.0	2.9E
MAY 30	4 47	19.5	23 31 7.7	1.30338	0.30898	-12.628	-1.7	5.2	0.976	1.8	197.2	346.5	879.3	5.3E
JUN 1	5 5	56.3	24 15 24.0	1.28618	0.31292	-17.088	-1.5	5.2	0.950	2.0	205.2	348.6	891.6	7.7E
JUN 3	5 24	20.8	24 48 46.8	1.26414	0.31909	-20.977	-1.3	5.3	0.916	2.2	213.3	350.6	903.9	10.0E
JUN 5	5 42	22.7	25 11 12.7	1.23798	0.32713	-24.197	-1.1	5.4	0.877	2.5	221.4	352.7	916.2	12.2E
JUN 7	5 59	53.0	25 23 1.6	1.208										

1999 MERCURY

Geocentric Planetary Ephemeris

1999 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E. Lat	S.E. Long	P.A. Axis	I _s	Solar Elong
	(h m s)	(d ' ")			(a.u.)	(a.u.)	(km/s)		(")						
JUL 1	8 25 55.5	19 6 39.6	0.79604	0.45332	-26.869	0.8	8.5	0.365	6.9	343.0	11.9	117.4	25.4E		
JUL 3	8 31 53.7	18 19 19.9	0.76566	0.45818	-25.721	0.9	8.8	0.331	7.4	353.7	12.6	123.2	25.1E		
JUL 5	8 36 46.3	17 33 30.6	0.73668	0.46196	-24.428	1.1	9.1	0.296	7.9	4.6	13.2	128.9	24.5E		
JUL 7	8 40 30.6	16 50 3.9	0.70928	0.46465	-22.964	1.2	9.5	0.261	8.4	15.9	13.6	134.5	23.7E		
JUL 9	8 43 4.0	16 9 53.0	0.68370	0.46623	-21.300	1.4	9.8	0.226	8.9	27.4	13.9	140.1	22.6E		
JUL 11	8 44 24.1	15 33 52.3	0.66016	0.46669	-19.399	1.7	10.2	0.192	9.4	39.2	14.1	145.6	21.2E		
JUL 13	8 44 29.4	15 2 55.7	0.63898	0.46604	-17.220	2.0	10.5	0.158	9.9	51.3	14.1	151.1	19.5E		
JUL 15	8 43 19.7	14 37 54.8	0.62050	0.46428	-14.721	2.3	10.8	0.124	10.3	63.8	14.0	156.7	17.6E		
JUL 17	8 40 57.2	14 19 35.7	0.60510	0.46140	-11.865	2.7	11.1	0.093	10.8	76.6	13.7	162.3	15.3E		
JUL 19	8 37 27.1	14 8 34.0	0.59323	0.45744	-8.625	3.1	11.3	0.065	11.1	89.6	13.4	168.0	12.9E		
JUL 21	8 32 58.8	14 5 10.8	0.58532	0.45240	-4.991	3.7	11.5	0.042	11.4	103.0	12.9	173.8	10.3E		
JUL 23	8 27 46.0	14 9 27.6	0.58183	0.44632	-0.978	4.2	11.6	0.024	11.6	116.5	12.3	179.8	7.7E		
JUL 25	8 22 6.9	14 21 2.6	0.58318	0.43924	3.371	4.7	11.5	0.013	11.7	130.2	11.7	185.9	5.7E		
JUL 27	8 16 23.1	14 39 10.8	0.58971	0.43120	7.986	4.8	11.4	0.011	11.7	143.9	11.0	192.3	5.0W		
JUL 29	8 10 58.4	15 2 45.7	0.60168	0.42227	12.773	4.5	11.2	0.017	11.6	157.6	10.4	198.9	6.2W		
JUL 31	8 6 16.8	15 30 24.5	0.61923	0.41253	17.625	3.9	10.9	0.033	11.3	171.1	9.9	205.8	8.4W		
AUG 2	8 2 40.2	16 0 34.6	0.64237	0.40209	22.432	3.2	10.5	0.059	11.0	184.3	9.4	213.1	10.7W		
AUG 4	8 0 27.2	16 31 39.5	0.67098	0.39108	27.085	2.5	10.0	0.094	10.5	197.2	9.2	220.7	13.0W		
AUG 6	7 59 51.9	17 2 2.5	0.70483	0.37967	31.481	2.0	9.5	0.137	10.1	209.7	9.1	228.8	14.9W		
AUG 8	8 1 4.0	17 30 9.2	0.74356	0.36807	35.520	1.4	9.0	0.189	9.6	221.8	9.2	237.4	16.5W		
AUG 10	8 4 8.6	17 54 27.4	0.78670	0.35654	39.099	1.0	8.6	0.249	9.0	233.4	9.5	246.6	17.7W		
AUG 12	8 9 7.2	18 13 27.2	0.83365	0.34539	42.102	0.6	8.1	0.315	8.5	244.6	10.1	256.4	18.5W		
AUG 14	8 15 57.7	18 25 40.6	0.88368	0.33496	44.401	0.2	7.6	0.387	8.0	255.3	10.9	266.8	18.8W		
AUG 16	8 24 35.2	18 29 44.2	0.93590	0.32567	45.858	-0.1	7.2	0.464	7.6	265.5	11.8	277.8	18.7W		
AUG 18	8 34 51.3	18 24 22.6	0.98924	0.31791	46.343	-0.4	6.8	0.544	7.1	275.4	12.9	289.4	18.2W		
AUG 20	8 46 35.1	18 8 34.3	1.04255	0.31210	45.765	-0.6	6.5	0.623	6.7	284.9	14.2	301.6	17.4W		
AUG 22	8 59 32.9	17 41 39.4	1.09455	0.30856	44.100	-0.8	6.1	0.700	6.4	294.0	15.5	314.1	16.2W		
AUG 24	9 13 28.9	17 3 25.5	1.14404	0.30751	41.423	-1.0	5.9	0.771	6.1	302.9	17.0	326.7	14.8W		
AUG 26	9 28 6.3	16 14 11.0	1.18993	0.30903	37.907	-1.1	5.7	0.833	5.8	311.6	18.4	339.4	13.2W		
AUG 28	9 43 9.1	15 14 43.5	1.23140	0.31300	33.801	-1.2	5.5	0.885	5.5	320.1	19.8	351.9	11.4W		
AUG 30	9 58 22.7	14 6 13.3	1.26791	0.31919	29.374	-1.3	5.3	0.926	5.3	328.5	21.1	3.9	9.5W		
SEP 1	10 13 35.0	12 50 4.4	1.29924	0.32726	24.878	-1.4	5.2	0.956	5.1	336.9	22.3	15.4	7.6W		
SEP 3	10 28 37.2	11 27 44.7	1.32544	0.33679	20.508	-1.5	5.1	0.977	5.0	345.2	23.5	26.4	5.7W		
SEP 5	10 43 23.2	10 0 39.3	1.34673	0.34738	16.393	-1.6	5.0	0.990	4.8	353.6	24.5	36.6	3.9W		
SEP 7	10 57 49.1	8 30 5.1	1.36345	0.35863	12.602	-1.7	4.9	0.997	4.7	1.9	25.4	46.3	2.3W		
SEP 9	11 11 53.4	6 57 8.6	1.37599	0.37019	9.158	-1.7	4.9	0.998	4.5	10.4	26.2	55.4	1.7E		
SEP 11	11 25 35.7	5 22 46.0	1.38475	0.38177	6.052	-1.5	4.9	0.996	4.4	18.9	26.8	63.9	2.6E		
SEP 13	11 38 56.4	3 47 43.7	1.39010	0.39312	3.257	-1.3	4.8	0.991	4.3	27.5	27.4	71.9	4.1E		
SEP 15	11 51 56.8	2 12 39.6	1.39239	0.40404	0.738	-1.1	4.8	0.984	4.2	36.2	27.8	79.5	5.7E		
SEP 17	12 4 38.3	0 38 4.6	1.39190	0.41436	-1.545	-1.0	4.8	0.976	4.1	44.9	28.2	86.7	7.2E		
SEP 19	12 17 2.5	0-55-36.0	1.38890	0.42396	-3.630	-0.8	4.8	0.967	4.0	53.7	28.4	93.5	8.7E		
SEP 21	12 29 11.3	-2-28 -1.2	1.38359	0.43274	-5.552	-0.7	4.9	0.956	3.9	62.5	28.6	100.1	10.1E		
SEP 23	12 41 6.1	-3-58-53.5	1.37613	0.44061	-7.342	-0.6	4.9	0.946	3.8	71.5	28.6	106.4	11.5E		
SEP 25	12 52 48.4	-5-27-58.0	1.36667	0.44751	-9.030	-0.5	4.9	0.934	3.8	80.5	28.6	112.5	12.8E		
SEP 27	13 4 19.7	-6-55 -1.6	1.35531	0.45340	-10.639	-0.4	5.0	0.922	3.7	89.5	28.5	118.4	14.0E		
SEP 29	13 15 41.3	-8-19-52.7	1.34212	0.45824	-12.193	-0.3	5.0	0.909	3.6	98.7	28.3	124.2	15.2E		
OCT 1	13 26 54.0	-9-42-20.6	1.32716	0.46201	-13.709	-0.3	5.1	0.896	3.5	107.8	28.1	129.9	16.3E		
OCT 3	13 37 58.8	-11 -2-14.6	1.31046	0.46468	-15.204	-0.2	5.1	0.882	3.4	117.1	27.7	135.5	17.4E		
OCT 5	13 48 56.2	-12-19-24.3	1.29204	0.46624	-16.691	-0.2	5.2	0.868	3.3	126.4	27.4	141.1	18.4E		
OCT 7	13 59 46.3	-13-33-39.0	1.27190	0.46669	-18.180	-0.1	5.3	0.852	3.2	135.7	26.9	146.6	19.3E		
OCT 9	14 10 29.2	-14-44-47.5	1.25004	0.46602	-19.679	-0.1	5.4	0.835	3.1	145.2	26.4	152.2	20.2E		
OCT 11	14 21 4.2	-15-52-37.7	1.22644	0.46424	-21.193	-0.1	5.5	0.817	2.9	154.7	25.9	157.7	21.1E		
OCT 13	14 31 30.4	-16-56-56.6	1.20108	0.46135	-22.724	-0.1	5.6	0.798	2.8	164.2	25.3	163.4	21.8E		
OCT 15	14 41 46.3	-17-57-29.7	1.17394	0.45737	-24.272	-0.1	5.7	0.776	2.7	173.8	24.6	169.1	22.5E		
OCT 17	14 51 49.6	-18-54 -0.7	1.14501	0.45232	-25.832	-0.1	5.9	0.752	2.6	183.6	24.0	174.9	23.1E		
OCT 19	15 1 37.1	-19-46-11.3	1.11427	0.44622	-27.391	-0.1	6.0	0.725	2.5	193.4	23.2	180.9	23.6E		
OCT 21	15 11 4.5	-20-33-40.3	1.08174	0.43913	-28.932	-0.1	6.2	0.696	2.3	203.3	22.5	187.0	23.9E		
OCT 23	15 20 6.3	-21-16 -3.1	1.04745	0.43107	-30.423	0.0	6.4	0.662	2.2	213.3	21.8	193.4	24.2E		
OCT 25	15 28 35.2	-21-52-50.7	1.01150	0.42213	-31.820	0.0	6.7	0.624	2.0	223.6	21.1	200.0	24.3E		
OCT 27	15 36 21.7	-22-23-28.5	0.97401	0.41238	-33.054	0.0	6.9	0.581	1.9	234.0	20.4	206.9	24.2E		
OCT 29	15 43 14.2	-22-47-14.3	0.93524	0.40193	-34.030	0.0	7.2	0.533	1.7	244.6	19.8	214.2	23.8E		
OCT 31	15 48 57.8	-23 -3-16.0	0.89555	0.39091	-34.612	0.1	7.5	0.478	1.5	255.6	19.3	221.8	23.2E		
NOV 2	15 53 14.9	-23-10-28.7	0.85550	0.37950	-34.609	0.3	7.9	0.416	1.3	266.9	18.9	229.9	22.2E		
NOV 4	15 55 45.1	-23 -7-32.4	0.81591	0.36790	-33.768	0.5	8.2	0.348	1.1	278.6	18.7	238.6	20.7E		
NOV 6	15 56 7.0	-22-52-52.6	0.77793	0.35637	-31.773	0.8	8.6	0.274	0.8	290.9	18.6	247.7	18.7E		
NOV 8	15 54 1.5	-22-24-48.1	0.74309	0.34522	-28.261	1.2	9.1	0.197	0.5	303.8	18.8	257.5	16.1E		
NOV 10	15 49 18.1	-21-41-54.7	0.71334	0.33481	-22.897	1.9	9.4	0.123	0.2	317.3	19.3	267.9	12.8E		
NOV 12	15 42 3.8	-20-43-54.7	0.69096	0.32553	-15.499	2.9	9.7	0.059	-0.1	331.5	19.9	279.0	8.9E		
NOV 14	15 32 51.2	-19-32-47.6	0.67825	0.31781	-6.217	4.2	9.9	0.015	-0.5	346.2	20.7	290.6	4.5E		
NOV 16	15 22 40.3	-18-13-47.7	0.67706	0.31203	4.326	5.8	9.9	0.000	-0.9	1.2	21.6	302.8	0.4W		
NOV 18	15 12 49.1	-16-55 -7.5	0.68830	0.30852	15.094	4.0	9.8	0.019	-1.2	16.2	22.4	315.3	4.9W		
NOV 20	15 4 33.0	-15-45-55.1	0.71154	0.30751	24.922	2.6	9.5	0.071	-1.5	30.7	23.0	328.0	9.2W		
NOV 22	14 58 45.9	-14-53-27.3	0.74513	0.30907	32.900	1.5	9.0	0.147	-1.7	44.6	23.4	340.6	12.8W		
NOV 24	14 55 52.1	-14-21-24.7	0.78663	0.31308	38.590	0.8	8.6	0.238	-2.0	57.8	23.7	353.1	15.7W		
NOV 26	14 55 50.0	-14 -9-51.9	0.83339	0.31930	42.011	0.3	8.1	0.333	-2.1	70.1	23.7	5.1	17.7W		
NOV 28	14 58 22.2	-14-16-27.8	0.88293	0.32739	43.481	0.0	7.6	0.425	-2.3	81.8	23.5	16.6	19.1W		
NOV 30	15 3 4.3														

2000 MERCURY

Geocentric Planetary Ephemeris

2000 MERCURY

Date (0 DT)	RA [Mean] (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	18 4 52.6	-24-22-42.9	1.41315	0.46626	8.458	-0.6	4.8	0.973	-3.8	245.5	4.7	142.2	8.8W
JAN 3	18 18 35.3	-24-30-24.7	1.42183	0.46669	6.567	-0.7	4.7	0.979	-3.9	254.7	3.0	147.8	7.8W
JAN 5	18 32 24.8	-24-32-46.8	1.42833	0.46600	4.686	-0.8	4.7	0.985	-4.0	263.8	1.4	153.3	6.7W
JAN 7	18 46 20.1	-24-29-40.2	1.43266	0.46420	2.800	-0.8	4.7	0.989	-4.1	272.9	359.7	158.9	5.6W
JAN 9	19 0 20.5	-24-20-56.6	1.43480	0.46130	0.894	-0.9	4.7	0.993	-4.1	282.0	358.0	164.5	4.6W
JAN 11	19 14 25.1	-24 -6-28.3	1.43472	0.45730	-1.047	-1.0	4.7	0.996	-4.2	291.0	356.4	170.2	3.6W
JAN 13	19 28 32.9	-23-46 -8.4	1.43236	0.45223	-3.041	-1.1	4.7	0.997	-4.3	300.1	354.7	176.0	2.7W
JAN 15	19 42 43.1	-23-19-50.8	1.42767	0.44612	-5.108	-1.2	4.7	0.998	-4.4	309.0	353.0	182.0	2.1W
JAN 17	19 56 54.6	-22-47-30.1	1.42053	0.43901	-7.266	-1.2	4.7	0.998	-4.5	318.0	351.4	188.1	2.1E
JAN 19	20 11 6.5	-22 -9 -2.3	1.41084	0.43094	-9.539	-1.2	4.8	0.997	-4.6	326.9	349.8	194.5	2.8E
JAN 21	20 25 17.6	-21-24-24.8	1.39845	0.42198	-11.949	-1.2	4.8	0.994	-4.7	335.8	348.2	201.1	3.9E
JAN 23	20 39 26.6	-20-33-36.8	1.38318	0.41222	-14.521	-1.2	4.9	0.989	-4.8	344.7	346.6	208.1	5.1E
JAN 25	20 53 31.8	-19-36-39.9	1.36484	0.40176	-17.279	-1.1	4.9	0.981	-4.9	353.5	345.1	215.3	6.4E
JAN 27	21 7 31.3	-18-33-39.7	1.34319	0.39073	-20.242	-1.1	5.0	0.970	-5.0	2.3	343.7	223.0	7.7E
JAN 29	21 21 22.5	-17-24-47.0	1.31800	0.37932	-23.421	-1.1	5.1	0.956	-5.2	11.1	342.3	231.1	9.1E
JAN 31	21 35 2.1	-16-10-19.8	1.28901	0.36772	-26.814	-1.1	5.2	0.936	-5.3	19.9	341.0	239.7	10.5E
FEB 2	21 48 25.5	-14-50-46.4	1.25600	0.35619	-30.393	-1.0	5.4	0.910	-5.5	28.6	339.8	248.9	11.9E
FEB 4	22 1 26.8	-13-26-48.8	1.21876	0.34505	-34.099	-1.0	5.5	0.876	-5.7	37.4	338.6	258.7	13.3E
FEB 6	22 13 58.2	-11-59-27.1	1.17722	0.33466	-37.822	-1.0	5.7	0.834	-5.9	46.3	337.6	269.2	14.6E
FEB 8	22 25 49.5	-10-30 -4.1	1.13145	0.32540	-41.391	-0.9	5.9	0.781	-6.1	55.3	336.7	280.2	15.8E
FEB 10	22 36 47.8	-9 0-29.7	1.08176	0.31770	-44.566	-0.8	6.2	0.716	-6.4	64.5	335.9	291.9	16.9E
FEB 12	22 46 37.6	-7-33 -3.3	1.02877	0.31195	-47.052	-0.7	6.5	0.641	-6.7	74.0	335.2	304.0	17.6E
FEB 14	22 55 1.4	-6-10-32.7	0.97346	0.30849	-48.524	-0.5	6.9	0.556	-7.1	83.8	334.7	316.5	18.1E
FEB 16	23 1 40.3	-4-56 -8.1	0.91718	0.30752	-48.685	-0.3	7.3	0.465	-7.5	94.0	334.2	329.2	18.1E
FEB 18	23 6 16.6	-3-53-10.1	0.86157	0.30911	-47.320	0.1	7.8	0.370	-7.9	104.8	333.9	341.9	17.6E
FEB 20	23 8 36.0	-3 -4-51.9	0.80847	0.31316	-44.346	0.5	8.3	0.277	-8.4	116.2	333.8	354.3	16.5E
FEB 22	23 8 30.9	-2-33-57.2	0.75971	0.31941	-39.830	1.2	8.9	0.192	-8.9	128.2	333.8	6.4	14.7E
FEB 24	23 6 3.7	-2-22-14.0	0.71696	0.32753	-33.983	1.9	9.4	0.119	-9.3	141.0	333.9	17.9	12.4E
FEB 26	23 1 28.8	-2-30 -7.7	0.68157	0.33710	-27.136	2.8	9.9	0.063	-9.7	154.4	334.1	28.8	9.5E
FEB 28	22 55 13.6	-2-56-20.4	0.65447	0.34771	-19.707	3.9	10.3	0.026	-10.0	168.2	334.4	39.0	6.4E
MAR 1	22 47 55.9	-3-37-47.3	0.63607	0.35898	-12.152	4.7	10.6	0.009	-10.1	182.5	334.9	48.7	3.9W
MAR 3	22 40 19.3	-4-29-57.8	0.62626	0.37055	-4.902	4.6	10.7	0.012	-10.1	196.9	335.4	57.7	4.6W
MAR 5	22 33 6.0	-5-27-41.1	0.62447	0.38213	1.691	3.8	10.8	0.031	-10.0	211.2	335.9	66.2	7.6W
MAR 7	22 26 51.1	-6-25-58.8	0.62981	0.39347	7.405	3.0	10.7	0.063	-9.7	225.4	336.4	74.2	11.1W
MAR 9	22 21 59.1	-7-20-44.9	0.64119	0.40437	12.149	2.4	10.5	0.103	-9.4	239.1	336.8	81.8	14.4W
MAR 11	22 18 43.2	-8 -9 -4.8	0.65750	0.41467	15.944	1.9	10.2	0.149	-9.0	252.5	337.1	89.0	17.3W
MAR 13	22 17 7.5	-8-49-11.7	0.67768	0.42425	18.880	1.5	9.9	0.197	-8.5	265.4	337.2	95.8	19.8W
MAR 15	22 17 9.2	-9-20-13.7	0.70082	0.43299	21.084	1.2	9.6	0.244	-8.0	277.9	337.2	102.4	22.0W
MAR 17	22 18 41.5	-9-41-56.1	0.72615	0.44083	22.686	1.0	9.3	0.290	-7.5	289.9	337.1	108.7	23.7W
MAR 19	22 21 35.8	-9-54-27.3	0.75304	0.44771	23.809	0.8	8.9	0.334	-7.1	301.6	337.0	114.8	25.1W
MAR 21	22 25 42.6	-9-58 -8.5	0.78101	0.45357	24.557	0.7	8.6	0.375	-6.6	313.0	336.7	120.7	26.2W
MAR 23	22 30 53.1	-9-53-26.1	0.80966	0.45838	25.018	0.6	8.3	0.414	-6.2	324.0	336.3	126.5	26.9W
MAR 25	22 36 58.9	-9-40-48.7	0.83872	0.46211	25.262	0.5	8.0	0.450	-5.8	334.9	335.9	132.2	27.5W
MAR 27	22 43 52.8	-9-20-43.9	0.86796	0.46475	25.342	0.4	7.8	0.484	-5.4	345.4	335.4	137.8	27.7W
MAR 29	22 51 28.6	-8-53-38.1	0.89722	0.46628	25.301	0.3	7.5	0.515	-5.0	355.8	335.0	143.4	27.8W
MAR 31	22 59 40.8	-8-19-55.2	0.92637	0.46669	25.169	0.3	7.3	0.545	-4.6	6.0	334.5	148.9	27.7W
APR 2	23 8 25.1	-7-39-57.1	0.95534	0.46599	24.969	0.3	7.0	0.573	-4.3	16.0	334.0	154.5	27.5W
APR 4	23 17 38.1	-6-54 -3.8	0.98404	0.46417	24.716	0.2	6.8	0.600	-4.0	25.9	333.5	160.1	27.0W
APR 6	23 27 16.9	-6 -2-33.3	1.01242	0.46125	24.418	0.2	6.6	0.626	-3.7	35.7	333.1	165.7	26.5W
APR 8	23 37 19.4	-5 -5-42.2	1.04043	0.45723	24.079	0.1	6.5	0.652	-3.4	45.3	332.7	171.4	25.8W
APR 10	23 47 44.2	-4 -3-45.9	1.06803	0.45215	23.697	0.0	6.3	0.677	-3.1	54.8	332.3	177.2	25.0W
APR 12	23 58 30.2	-2-56-59.2	1.09516	0.44602	23.263	0.0	6.1	0.701	-2.8	64.1	332.0	183.2	24.0W
APR 14	0 9 37.2	-1-45-35.8	1.12175	0.43889	22.765	-0.1	6.0	0.726	-2.6	73.4	331.8	189.4	23.0W
APR 16	0 21 5.1	-0-29-49.5	1.14772	0.43081	22.183	-0.2	5.9	0.751	-2.3	82.6	331.6	195.7	21.8W
APR 18	0 32 54.3	0 50 5.6	1.17296	0.42184	21.491	-0.3	5.7	0.776	-2.1	91.6	331.5	202.4	20.5W
APR 20	0 45 5.9	2 13 54.6	1.19732	0.41206	20.655	-0.3	5.6	0.801	-1.8	100.5	331.4	209.3	19.1W
APR 22	0 57 41.0	3 41 20.8	1.22061	0.40159	19.635	-0.5	5.5	0.827	-1.6	109.4	331.5	216.6	17.6W
APR 24	1 10 41.1	5 12 4.9	1.24259	0.39056	18.382	-0.6	5.4	0.853	-1.4	118.1	331.7	224.2	16.0W
APR 26	1 24 7.9	6 45 43.8	1.26297	0.37914	16.839	-0.7	5.3	0.879	-1.2	126.6	331.9	232.4	14.2W
APR 28	1 38 3.5	8 21 49.2	1.28136	0.36754	14.941	-0.9	5.3	0.905	-1.0	135.1	332.3	241.0	12.4W
APR 30	1 52 29.5	9 59 45.4	1.29733	0.35601	12.623	-1.1	5.2	0.930	-0.8	143.5	332.8	250.2	10.4W
MAY 2	2 7 27.6	11 38 48.0	1.31034	0.34488	9.822	-1.3	5.1	0.954	-0.6	151.7	333.5	260.0	8.3W
MAY 4	2 22 58.7	13 18 1.2	1.31982	0.33450	6.492	-1.5	5.1	0.974	-0.4	159.9	334.3	270.4	6.1W
MAY 6	2 39 2.9	14 56 16.8	1.32514	0.32527	2.623	-1.8	5.1	0.990	-0.2	167.9	335.2	281.5	3.8W
MAY 8	2 55 38.5	16 32 13.7	1.32570	0.31759	-1.742	-2.1	5.1	0.999	-0.1	175.9	336.3	293.2	1.4W
MAY 10	3 12 42.1	18 4 19.8	1.32098	0.31188	-6.489	-2.2	5.1	0.999	0.1	183.9	337.6	305.3	1.0E
MAY 12	3 30 7.9	19 30 57.0	1.31065	0.30845	-11.431	-1.9	5.1	0.990	0.3	191.8	339.0	317.8	3.5E
MAY 14	3 47 48.1	20 50 29.1	1.29461	0.30752	-16.327	-1.7	5.2	0.970	0.5	199.7	340.6	330.5	5.9E
MAY 16	4 5 33.2	22 1 30.8	1.27306	0.30915	-20.917	-1.5	5.3	0.941	0.7	207.7	342.3	343.2	8.3E
MAY 18	4 23 12.7	23 2 56.4	1.24650	0.31324	-24.978	-1.3	5.4	0.903	0.9	215.8	344.0	355.6	10.6E
MAY 20	4 40 36.3	23 54 5.2	1.21563	0.31953	-28.358	-1.1	5.5	0.858	1.1	224.0	345.8	7.7	12.7E
MAY 22	4 57 34.3	24 34 42.2	1.18129	0.32767	-30.990	-0.9	5.7	0.809	1.3	232.3	347.6	19.2	14.7E
MAY 24	5 13 58.2	25 4 55.8	1.14433	0.33726	-32.885	-0.7	5.9	0.758	1.6	240.8	349.4	30.1	16.6E
MAY 26	5 29 41.3	25 25 12.5	1.10558	0.34789	-34.109	-0.6	6.1	0.706	1.8	249.6	351.2	40.3	18.2E
MAY 28	5 44 38.0	25 36 12.0	1.06576	0.35916	-34.753	-0.4	6.3	0.655	2.1	258.5	353.0	50.0	19.7E
MAY 30	5 58 43.9	25 38 41.6	1.02548	0.37073	-34.916	-0.2	6.6	0.606	2.4	267.6	354.6	59.0	20.9E
JUN 1	6 11 55.7	25 33 32.9	0.98524	0.38231	-34.691	-0.1	6.8	0.559	2.7	276.9	356.2	67.5	22.0E
JUN 3	6 24 10.3	25 21 39.2	0.94546	0.39364	-34.153	0.1	7.1	0.513	3.1	286.4	357.6	75.5	22.8E
JUN 5	6 35 25.3	25 3 53.6	0.90644	0.40453	-33.364	0.3	7.4	0.470	3.5	296.2	359.0	83.1	23.4E
JUN 7	6 45 38.3	24 41 8.4	0.86846	0.41483	-32.366	0.4	7.7	0.428	3.9	306.1	0.2	90.2	23.9E
JUN 9	6 54 46.7	24 14 14.5	0.83173	0.42439	-31.190	0.6							

2000 MERCURY

Geocentric Planetary Ephemeris

2000 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	7 15 30.4	18 31 53.8	0.56896	0.46413	-5.740	4.0	11.8	0.032	9.8	86.3	3.8	161.3	9.2E		
JUL 3	7 10 45.9	18 15 37.6	0.56448	0.46119	-1.973	4.5	11.9	0.018	10.1	99.7	3.2	167.0	6.8E		
JUL 5	7 5 35.5	18 4 22.0	0.56447	0.45716	1.997	4.9	11.9	0.010	10.4	113.2	2.6	172.7	5.1E		
JUL 7	7 0 18.9	17 58 21.0	0.56914	0.45206	6.114	5.0	11.8	0.009	10.5	126.7	2.0	178.5	4.8W		
JUL 9	6 55 16.9	17 57 38.3	0.57861	0.44592	10.307	4.6	11.6	0.016	10.6	140.2	1.4	184.5	6.2W		
JUL 11	6 50 49.9	18 2 6.3	0.59294	0.43878	14.504	4.0	11.3	0.030	10.5	153.6	0.8	190.6	8.4W		
JUL 13	6 47 16.5	18 11 25.3	0.61208	0.43068	18.635	3.4	11.0	0.051	10.4	166.7	0.4	197.0	10.8W		
JUL 15	6 44 52.2	18 25 4.3	0.63593	0.42170	22.640	2.8	10.6	0.080	10.1	179.6	0.1	203.7	13.0W		
JUL 17	6 43 49.3	18 42 21.2	0.66431	0.41191	26.466	2.3	10.1	0.114	9.8	192.1	360.0	210.6	15.0W		
JUL 19	6 44 16.4	19 2 24.4	0.69697	0.40143	30.067	1.8	9.7	0.155	9.5	204.3	0.0	217.9	16.6W		
JUL 21	6 46 19.1	19 24 13.6	0.73365	0.39039	33.400	1.4	9.2	0.202	9.1	216.0	0.3	225.6	18.0W		
JUL 23	6 50 0.5	19 46 41.0	0.77401	0.37896	36.417	1.0	8.7	0.253	8.8	227.4	0.7	233.7	18.9W		
JUL 25	6 55 21.6	20 8 31.7	0.81763	0.36736	39.057	0.7	8.2	0.310	8.4	238.5	1.4	242.3	19.5W		
JUL 27	7 2 21.7	20 28 24.8	0.86405	0.35584	41.242	0.4	7.8	0.371	8.0	249.1	2.2	251.5	19.8W		
JUL 29	7 10 58.8	20 44 54.4	0.91269	0.34472	42.875	0.1	7.4	0.437	7.6	259.3	3.2	261.4	19.7W		
JUL 31	7 21 9.1	20 56 30.4	0.96284	0.33435	43.841	-0.2	7.0	0.507	7.3	269.2	4.5	271.8	19.2W		
AUG 2	7 32 47.0	21 1 42.2	1.01367	0.32514	44.019	-0.4	6.6	0.578	6.9	278.8	5.8	282.9	18.4W		
AUG 4	7 45 45.0	20 59 3.1	1.06419	0.31749	43.299	-0.6	6.3	0.651	6.6	288.0	7.4	294.5	17.4W		
AUG 6	7 59 52.9	20 47 16.9	1.11333	0.31181	41.618	-0.8	6.0	0.722	6.4	297.0	9.0	306.7	16.0W		
AUG 8	8 14 58.3	20 25 26.4	1.15997	0.30842	38.985	-1.0	5.8	0.788	6.1	305.7	10.7	319.2	14.4W		
AUG 10	8 30 46.6	19 53 0.7	1.20307	0.30753	35.506	-1.2	5.6	0.848	5.9	314.2	12.5	331.9	12.6W		
AUG 12	8 47 2.4	19 9 59.2	1.24176	0.30920	31.376	-1.3	5.4	0.898	5.7	322.6	14.2	344.6	10.7W		
AUG 14	9 3 30.7	18 16 51.7	1.27542	0.31332	26.849	-1.4	5.3	0.937	5.6	330.8	15.9	357.0	8.6W		
AUG 16	9 19 58.0	17 14 33.3	1.30375	0.31964	22.187	-1.6	5.2	0.966	5.4	339.1	17.6	369.1	6.6W		
AUG 18	9 36 13.4	16 4 15.6	1.32672	0.32780	17.616	-1.7	5.1	0.985	5.3	347.2	19.1	381.7	4.6W		
AUG 20	9 52 9.0	14 47 17.7	1.34455	0.33741	13.300	-1.8	5.0	0.995	5.2	355.5	20.6	394.3	2.8W		
AUG 22	10 7 39.4	13 24 58.6	1.35760	0.34805	9.335	-1.8	5.0	0.998	5.1	363.7	21.9	407.1	1.8E		
AUG 24	10 22 41.9	11 58 32.1	1.36628	0.35933	5.762	-1.6	4.9	0.996	5.1	371.9	23.0	420.1	2.6E		
AUG 26	10 37 15.4	10 29 3.5	1.37107	0.37090	2.578	-1.4	4.9	0.990	5.0	380.1	24.1	433.1	4.2E		
AUG 28	10 51 20.0	8 57 29.4	1.37239	0.38248	-0.244	-1.2	4.9	0.981	4.9	388.1	25.0	446.1	6.0E		
AUG 30	11 4 56.8	7 24 37.5	1.37064	0.39381	-2.744	-1.0	4.9	0.970	4.9	395.9	25.8	459.1	7.7E		
SEP 1	11 18 7.4	5 51 7.6	1.36616	0.40469	-4.967	-0.9	4.9	0.957	4.8	403.7	26.5	472.1	9.3E		
SEP 3	11 30 53.5	4 17 32.9	1.35926	0.41498	-6.957	-0.7	4.9	0.944	4.8	411.5	27.1	485.1	10.9E		
SEP 5	11 43 17.1	2 44 21.1	1.35017	0.42453	-8.755	-0.6	5.0	0.930	4.8	419.3	27.6	498.1	12.4E		
SEP 7	11 55 20.0	1 11 55.5	1.33909	0.43325	-10.399	-0.5	5.0	0.916	4.7	427.1	28.0	511.1	13.8E		
SEP 9	12 7 3.8	0-19-24.1	1.32619	0.44106	-11.922	-0.4	5.1	0.901	4.7	434.9	28.2	524.1	15.1E		
SEP 11	12 18 30.3	-1-49-20.3	1.31159	0.44790	-13.350	-0.3	5.1	0.886	4.6	442.7	28.5	537.1	16.4E		
SEP 13	12 29 40.7	-3-17-37.9	1.29538	0.45373	-14.709	-0.2	5.2	0.871	4.6	450.5	28.6	550.1	17.6E		
SEP 15	12 40 36.2	-4-44-3.0	1.27764	0.45851	-16.017	-0.2	5.3	0.855	4.6	458.3	28.6	563.1	18.7E		
SEP 17	12 51 17.7	-6-8-22.4	1.25840	0.46221	-17.291	-0.1	5.3	0.838	4.5	466.1	28.6	576.1	19.8E		
SEP 19	13 1 45.8	-7-30-23.6	1.23770	0.46481	-18.546	-0.1	5.4	0.821	4.5	473.9	28.6	589.1	20.8E		
SEP 21	13 12 0.8	-8-49-53.8	1.21556	0.46631	-19.791	-0.1	5.5	0.803	4.4	481.7	28.4	602.1	21.7E		
SEP 23	13 22 2.7	-10-6-39.8	1.19198	0.46669	-21.035	0.0	5.6	0.784	4.4	489.5	28.2	615.1	22.5E		
SEP 25	13 31 50.8	-11-20-27.4	1.16697	0.46595	-22.281	0.0	5.8	0.764	4.3	497.3	28.0	628.1	23.3E		
SEP 27	13 41 24.1	-12-31-0.8	1.14051	0.46410	-23.531	0.0	5.9	0.742	4.3	505.1	27.7	641.1	23.9E		
SEP 29	13 50 40.9	-13-38-2.6	1.11261	0.46114	-24.779	0.0	6.0	0.718	4.2	512.9	27.3	654.1	24.5E		
OCT 1	13 59 39.0	-14-41-12.5	1.08327	0.45710	-26.017	0.0	6.2	0.692	4.2	520.7	27.0	667.1	24.9E		
OCT 3	14 8 15.0	-15-40-7.1	1.05252	0.45198	-27.227	0.1	6.4	0.663	4.1	528.5	26.6	680.1	25.3E		
OCT 5	14 16 24.4	-16-34-18.5	1.02040	0.44582	-28.387	0.1	6.6	0.632	4.1	536.3	26.2	693.1	25.5E		
OCT 7	14 24 1.7	-17-23-13.3	0.98698	0.43867	-29.459	0.1	6.8	0.597	4.0	544.1	25.7	706.1	25.5E		
OCT 9	14 30 59.6	-18-6-10.7	0.95240	0.43056	-30.392	0.1	7.1	0.558	3.9	551.9	25.3	719.1	25.4E		
OCT 11	14 37 9.0	-18-42-20.5	0.91685	0.42156	-31.112	0.2	7.3	0.514	3.9	559.7	25.0	732.1	25.0E		
OCT 13	14 42 18.5	-19-10-40.8	0.88065	0.41176	-31.517	0.3	7.6	0.465	3.8	567.5	24.6	745.1	24.3E		
OCT 15	14 46 14.9	-19-29-54.7	0.84422	0.40127	-31.468	0.4	8.0	0.411	3.7	575.3	24.4	758.1	23.3E		
OCT 17	14 48 42.6	-19-38-28.5	0.80819	0.39023	-30.779	0.5	8.3	0.351	3.6	583.1	24.2	771.1	22.0E		
OCT 19	14 49 25.2	-19-34-31.4	0.77344	0.37879	-29.215	0.8	8.7	0.286	3.4	590.9	24.1	784.1	20.1E		
OCT 21	14 48 7.1	-19-16-1.0	0.74114	0.36719	-26.493	1.2	9.1	0.218	3.3	598.7	24.2	797.1	17.7E		
OCT 23	14 44 37.8	-18-41-2.6	0.71279	0.35568	-22.315	1.7	9.4	0.150	3.1	606.5	24.4	810.1	14.8E		
OCT 25	14 38 57.3	-17-48-27.8	0.69023	0.34456	-16.435	2.5	9.7	0.086	2.9	614.3	24.8	823.1	11.2E		
OCT 27	14 31 23.0	-16-38-56.5	0.67549	0.33421	-8.779	3.5	10.0	0.035	2.6	622.1	25.3	836.1	7.1E		
OCT 29	14 22 34.2	-15-16-5.2	0.67053	0.32501	0.419	4.9	10.0	0.005	2.2	629.9	25.8	849.1	2.7E		
OCT 31	14 13 29.7	-13-46-55.4	0.67679	0.31739	10.534	5.1	9.9	0.003	1.9	637.7	26.2	862.1	2.1W		
NOV 2	14 5 17.0	-12-20-55.1	0.69483	0.31174	20.631	3.5	9.7	0.033	1.5	645.5	26.6	875.1	6.4W		
NOV 4	13 58 56.3	-11-7-34.0	0.72403	0.30839	29.712	2.2	9.3	0.092	1.1	653.3	26.9	888.1	10.4W		
NOV 6	13 55 7.0	-10-13-51.4	0.76275	0.30753	37.001	1.3	8.8	0.174	0.7	661.1	27.1	901.1	13.6W		
NOV 8	13 54 3.7	-9-43-0.0	0.80865	0.30924	42.110	0.6	8.3	0.268	0.4	668.9	27.1	914.1	16.0W		
NOV 10	13 55 40.5	-9-34-43.3	0.85917	0.31339	45.038	0.1	7.8	0.366	0.1	676.7	27.1	927.1	17.8W		
NOV 12	13 59 38.8	-9-46-26.1	0.91195	0.31974	46.058	-0.2	7.4	0.461	-0.2	684.5	26.9	940.1	18.8W		
NOV 14	14 5 34.8	-10-14-29.4	0.96500	0.32793	45.573	-0.4	7.0	0.547	-0.4	692.3	26.6	953.1	19.3W		
NOV 16	14 13 5.0	-10-55-4.2	1.01682	0.33756	44.004	-0.5	6.6	0.624	-0.7	700.1	26.3	966.1	19.3W		
NOV 18	14 21 48.7	-11-44-41.7	1.06639	0.34821	41.722	-0.6	6.3	0.689	-0.8	707.9	25.8	979.1	19.0W		
NOV 20	14 31 28.9	-12-40-25.6	1.11305	0.35950	39.018	-0.6	6.0	0.745	-1.0	715.7	25.2	992.1	18.5W		
NOV 22	14 41 52.7	-13-39-53.3	1.15645	0.37107	36.105	-0.6	5.8	0.791	-1.2	723.5	24.6	1005.1	17.8W		
NOV 24	14 52 50.1	-14-41-12.7	1.19644	0.38265	33.128	-0.6	5.6	0.829	-1.4	731.3	23.9	1018.1	17.0W		
NOV 26	15 4 13.9	-15-42-56.8	1.23301	0.39397	30.180	-0.6	5.5	0.861	-1.5	739.1	23.0	1031.1	16.0W		
NOV 28	15 15 58.7	-16-43-58.4	1.26621	0.40485	27.314	-0.6	5.3	0.887	-1.6	746.9	22.1	1044.1	15.1W		
NOV 30	15 28 0.9	-17-43-25.2	1.29616	0.41512	24.561	-0.6	5.2	0.909	-1.8	754.7	21.2	1057.1	14.0W		
DEC 2	15 40 17.7	-18-40-36.4	1.32300	0.42466	21.930	-0.6	5.1	0.927	-1.9	762.5	20.1	1070.1	13.0W		
DEC 4	15 52 47.2	-19-34-59.6	1.34687	0.43337	19.422	-0.6	5.0	0.941	-2.1	770.3	19.0	1083.1	11.9W		
DEC 6	16 5 28.2	-20-26-8.7	1.36792	0.44117	17.031	-0.6	4.9	0.954	-2.2	778.1	17.8	10			

2001 MERCURY

Geocentric Planetary Ephemeris

2001 MERCURY

Date (0 DT)	RA [Mean] (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	lg	Solar Elong
JAN 1	19 2 54.0	-24-38-13.0	1.42076	0.44572	-9.708	-1.0	4.7	0.994	-3.8	319.0	357.7	187.2	4.1E
JAN 3	19 17 8.1	-24-19-21.3	1.40826	0.43855	-11.968	-1.0	4.8	0.989	-4.0	328.0	356.0	193.4	5.3E
JAN 5	19 31 21.9	-23-54-20.6	1.39308	0.43043	-14.342	-1.0	4.8	0.983	-4.1	337.0	354.4	199.8	6.4E
JAN 7	19 45 33.9	-23-23-7.0	1.37508	0.42142	-16.847	-0.9	4.9	0.975	-4.3	346.0	352.7	206.4	7.6E
JAN 9	19 59 41.7	-22-45-38.9	1.35411	0.41161	-19.502	-0.9	5.0	0.965	-4.4	354.9	351.1	213.4	8.9E
JAN 11	20 13 43.0	-22-1-57.9	1.32997	0.40111	-22.322	-0.9	5.1	0.951	-4.6	3.9	349.5	220.7	10.1E
JAN 13	20 27 34.5	-21-12-10.0	1.30248	0.39005	-25.315	-0.9	5.2	0.934	-4.8	12.8	347.9	228.4	11.4E
JAN 15	20 41 12.1	-20-16-27.4	1.27143	0.37862	-28.478	-0.9	5.3	0.911	-5.0	21.8	346.4	236.5	12.6E
JAN 17	20 54 30.6	-19-15-11.0	1.23664	0.36701	-31.788	-0.9	5.4	0.883	-5.2	30.8	345.0	245.2	13.8E
JAN 19	21 7 23.4	-18-8-53.7	1.19797	0.35550	-35.191	-0.9	5.6	0.848	-5.4	39.8	343.7	254.4	15.0E
JAN 21	21 19 41.6	-16-58-24.9	1.15536	0.34440	-38.591	-0.8	5.8	0.805	-5.7	48.9	342.4	264.3	16.1E
JAN 23	21 31 14.1	-15-44-55.0	1.10888	0.33406	-41.837	-0.8	6.1	0.751	-6.0	58.2	341.3	274.8	17.1E
JAN 25	21 41 46.6	-14-30-1.2	1.05886	0.32488	-44.706	-0.7	6.4	0.687	-6.3	67.6	340.3	285.9	17.8E
JAN 27	21 51 1.9	-13-15-52.0	1.00587	0.31729	-46.909	-0.6	6.7	0.612	-6.7	77.4	339.5	297.5	18.3E
JAN 29	21 58 39.7	-12-5-9.0	0.95088	0.31167	-48.101	-0.4	7.1	0.526	-7.2	87.5	338.8	309.7	18.4E
JAN 31	22 4 18.2	-11-1-3.8	0.89527	0.30835	-47.927	-0.2	7.5	0.433	-7.7	98.0	338.3	322.3	18.1E
FEB 2	22 7 36.2	-10-7-6.7	0.84080	0.30754	-46.088	0.2	8.0	0.336	-8.2	109.2	338.0	335.0	17.1E
FEB 4	22 8 16.7	-9-26-44.8	0.78950	0.30928	-42.414	0.7	8.5	0.241	-8.8	121.1	337.9	347.6	15.6E
FEB 6	22 6 12.5	-9-2-50.3	0.74350	0.31347	-36.931	1.4	9.0	0.155	-9.3	133.7	338.0	0.1	13.3E
FEB 8	22 1 30.7	-8-57-1.7	0.70477	0.31985	-29.891	2.4	9.5	0.085	-9.8	147.0	338.4	12.1	10.4E
FEB 10	21 54 36.4	-9-9-8.8	0.67485	0.32807	-21.763	3.4	10.0	0.036	-10.3	161.0	339.0	23.6	7.1E
FEB 12	21 46 12.3	-9-36-57.0	0.65465	0.33772	-13.166	4.5	10.3	0.012	-10.6	175.4	339.7	34.4	4.2E
FEB 14	21 37 12.6	-10-16-25.8	0.64433	0.34838	-4.753	4.5	10.4	0.011	-10.7	190.0	340.5	44.7	4.3W
FEB 16	21 28 33.0	-11-2-39.4	0.64336	0.35967	2.919	3.7	10.5	0.032	-10.7	204.6	341.3	54.3	7.4W
FEB 18	21 21 0.5	-11-50-48.7	0.65063	0.37125	9.483	2.8	10.3	0.070	-10.5	218.9	342.1	63.3	11.0W
FEB 20	21 15 7.5	-12-36-58.4	0.66476	0.38282	14.790	2.1	10.1	0.118	-10.2	232.8	342.7	71.8	14.4W
FEB 22	21 11 10.4	-13-18-24.5	0.68431	0.39414	18.868	1.6	9.8	0.171	-9.8	246.3	343.1	79.8	17.4W
FEB 24	21 9 12.7	-13-53-29.1	0.70792	0.40501	21.852	1.2	9.5	0.226	-9.4	259.2	343.3	87.3	20.0W
FEB 26	21 9 9.1	-14-21-23.3	0.73443	0.41527	23.927	0.9	9.2	0.280	-8.9	271.6	343.4	94.5	22.1W
FEB 28	21 10 49.4	-14-41-50.0	0.76291	0.42480	25.279	0.7	8.8	0.331	-8.5	283.6	343.2	101.3	23.8W
MAR 2	21 14 1.6	-14-54-50.5	0.79262	0.43350	26.074	0.6	8.5	0.379	-8.1	295.2	342.9	107.9	25.1W
MAR 4	21 18 33.5	-15-0-35.3	0.82299	0.44128	26.451	0.5	8.2	0.423	-7.7	306.4	342.5	114.2	26.1W
MAR 6	21 24 13.5	-14-59-18.9	0.85360	0.44810	26.519	0.4	7.9	0.464	-7.3	317.4	341.9	120.3	26.8W
MAR 8	21 30 51.6	-14-51-16.7	0.88416	0.45389	26.364	0.3	7.6	0.502	-6.9	328.1	341.3	126.2	27.2W
MAR 10	21 38 19.1	-14-36-44.1	0.91445	0.45864	26.047	0.3	7.4	0.536	-6.5	338.6	340.6	132.0	27.4W
MAR 12	21 46 28.5	-14-15-55.1	0.94429	0.46230	25.614	0.2	7.1	0.568	-6.2	348.8	339.9	137.7	27.5W
MAR 14	21 55 13.6	-13-49-2.9	0.97359	0.46487	25.101	0.2	6.9	0.597	-5.9	359.0	339.2	143.3	27.3W
MAR 16	22 4 29.5	-13-16-19.5	1.00226	0.46633	24.532	0.2	6.7	0.624	-5.5	8.9	338.4	148.9	27.0W
MAR 18	22 14 11.8	-12-37-56.3	1.03025	0.46668	23.922	0.1	6.5	0.650	-5.3	18.8	337.6	154.4	26.6W
MAR 20	22 24 17.3	-11-54-3.5	1.05752	0.46591	23.284	0.1	6.4	0.674	-5.0	28.5	336.8	160.0	26.0W
MAR 22	22 34 43.2	-11-4-50.8	1.08403	0.46403	22.621	0.1	6.2	0.698	-4.7	38.1	336.1	165.6	25.3W
MAR 24	22 45 27.6	-10-10-27.0	1.10977	0.46104	21.934	0.0	6.1	0.720	-4.4	47.6	335.4	171.2	24.5W
MAR 26	22 56 28.9	-9-11-0.7	1.13470	0.45696	21.219	0.0	5.9	0.742	-4.2	56.9	334.7	176.9	23.6W
MAR 28	23 7 46.2	-8-6-40.0	1.15878	0.45181	20.468	-0.1	5.8	0.763	-4.0	66.2	334.1	182.8	22.6W
MAR 30	23 19 18.8	-6-57-32.8	1.18197	0.44562	19.669	-0.1	5.7	0.784	-3.7	75.4	333.5	188.8	21.6W
APR 1	23 31 6.8	-5-43-47.1	1.20419	0.43843	18.804	-0.2	5.6	0.805	-3.5	84.5	332.9	194.9	20.4W
APR 3	23 43 10.2	-4-25-31.3	1.22538	0.43029	17.851	-0.3	5.5	0.826	-3.3	93.5	332.5	201.3	19.1W
APR 5	23 55 29.7	-3-2-54.3	1.24539	0.42127	16.781	-0.4	5.4	0.847	-3.1	102.4	332.1	208.0	17.7W
APR 7	0 8 6.2	-1-36-5.9	1.26409	0.41145	15.560	-0.5	5.3	0.868	-2.9	111.2	331.8	214.9	16.2W
APR 9	0 21 0.7	0-5-17.9	1.28127	0.40094	14.145	-0.6	5.3	0.889	-2.7	120.0	331.6	222.2	14.6W
APR 11	0 34 14.8	1 29 15.7	1.29668	0.38988	12.486	-0.8	5.2	0.910	-2.5	128.6	331.4	229.9	12.9W
APR 13	0 47 49.9	3 7 16.6	1.31000	0.37844	10.527	-0.9	5.1	0.931	-2.3	137.1	331.4	238.1	11.1W
APR 15	1 1 47.5	4 48 21.5	1.32087	0.36683	8.212	-1.1	5.1	0.950	-2.1	145.5	331.5	246.8	9.2W
APR 17	1 16 9.2	6 31 59.8	1.32882	0.35532	5.481	-1.3	5.1	0.968	-1.9	153.8	331.7	256.0	7.1W
APR 19	1 30 56.0	8 17 31.9	1.33336	0.34423	2.286	-1.5	5.0	0.983	-1.8	162.0	332.1	265.9	5.0W
APR 21	1 46 8.2	10 4 6.6	1.33392	0.33390	-1.398	-1.8	5.0	0.994	-1.6	170.2	332.6	276.4	2.8W
APR 23	2 1 45.4	11 50 39.8	1.32996	0.32475	-5.557	-2.1	5.1	1.000	-1.4	178.2	333.2	287.5	0.7W
APR 25	2 17 45.4	13 35 53.6	1.32094	0.31719	-10.119	-2.0	5.1	0.997	-1.3	186.2	334.0	299.2	1.9E
APR 27	2 34 4.3	15 18 17.7	1.30649	0.31160	-14.939	-1.8	5.1	0.986	-1.1	194.2	334.9	311.4	4.2E
APR 29	2 50 36.2	16 56 14.2	1.28642	0.30832	-19.807	-1.6	5.2	0.964	-0.9	202.2	336.0	323.9	6.6E
MAY 1	3 7 13.2	18 28 4.6	1.26083	0.30755	-24.467	-1.5	5.3	0.931	-0.8	210.2	337.2	336.6	8.9E
MAY 3	3 23 46.1	19 52 19.0	1.23009	0.30933	-28.666	-1.3	5.5	0.889	-0.6	218.3	338.5	349.3	11.1E
MAY 5	3 40 5.0	21 7 44.9	1.19487	0.31355	-32.201	-1.1	5.6	0.849	-0.4	226.6	339.9	1.7	13.2E
MAY 7	3 56 0.1	22 13 33.0	1.15601	0.31997	-34.949	-0.9	5.8	0.784	-0.2	235.0	341.3	13.7	15.1E
MAY 9	4 11 22.3	23 9 18.4	1.11445	0.32821	-36.880	-0.7	6.0	0.726	0.0	243.6	342.8	25.2	16.9E
MAY 11	4 26 3.7	23 54 58.9	1.07112	0.33788	-38.035	-0.5	6.3	0.667	0.2	252.5	344.3	36.1	18.4E
MAY 13	4 39 57.5	24 30 50.0	1.02685	0.34855	-38.500	-0.4	6.6	0.608	0.5	261.5	345.7	46.3	19.7E
MAY 15	4 52 57.9	24 57 20.2	0.98240	0.35985	-38.382	-0.2	6.8	0.551	0.7	270.8	347.1	55.9	20.7E
MAY 17	5 5 0.2	25 15 6.0	0.93837	0.37143	-37.783	0.0	7.2	0.497	1.0	280.4	348.5	64.9	21.5E
MAY 19	5 16 0.1	25 24 48.3	0.89526	0.38300	-36.796	0.2	7.5	0.445	1.3	290.2	349.7	73.4	22.1E
MAY 21	5 25 53.7	25 27 9.4	0.85348	0.39432	-35.492	0.4	7.9	0.396	1.7	300.3	350.8	81.4	22.4E
MAY 23	5 34 37.4	25 22 52.0	0.81337	0.40518	-33.926	0.6	8.3	0.349	2.0	310.6	351.8	88.9	22.4E
MAY 25	5 42 7.8	25 12 37.4	0.77519	0.41543	-32.132	0.9	8.7	0.304	2.4	321.2	352.7	96.1	22.2E
MAY 27	5 48 21.8	24 57 5.3	0.73921	0.42494	-30.130	1.1	9.1	0.262	2.9	332.1	353.4	102.9	21.6E
MAY 29	5 53 16.5	24 36 54.0	0.70565	0.43363	-27.929	1.4	9.5	0.221	3.3	343.3	354.0	109.5	20.8E
MAY 31	5 56 49.9	24 12 40.2	0.67476	0.44139	-25.526	1.7	10.0	0.183	3.8	354.9	354.4	115.8	19.7E
JUN 2	5 59 1.0	23 45 0.4	0.64676	0.44819	-22.914	2.0	10.4	0.147	4.3	6.7	354.6	121.9	18.2E
JUN 4	5 59 50.1	23 14 31.8	0.62190	0.45397	-20.087	2.4	10.8	0.114	4.8	18.8	354.7	127.8	16.5E
JUN 6	5 59 20.1	22 41 54.0	0.60043	0.45870	-17.040	2.8	11.2	0.084	5.4	31.3	354.7	133.6	14.5E
JUN 8	5 57 36.3	22 7 50.6	0.58261	0.46235	-13.775	3.3	11.5	0.057	5.9	44.0	354.5	139.3	12.2E
JUN 10	5 54 47.2	21 33 10.9	0.56868										

2001 MERCURY

Geocentric Planetary Ephemeris

2001 MERCURY

Date (0 DT)	RA (h m s)	[Mean] Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	5 25 31.4	19 0 6.6	0.69808	0.42112	28.941	1.6	9.6	0.186	8.0	199.2	350.7	209.6	18.8W
JUL 4	5 28 42.9	19 18 50.5	0.73307	0.41129	31.599	1.3	9.2	0.229	7.8	210.7	351.0	216.6	19.9W
JUL 6	5 33 18.0	19 41 26.0	0.77099	0.40077	34.023	1.0	8.7	0.275	7.6	221.8	351.6	223.9	20.6W
JUL 8	5 39 16.6	20 6 50.1	0.81156	0.38970	36.188	0.7	8.3	0.324	7.4	232.7	352.3	231.6	21.0W
JUL 10	5 46 38.4	20 33 53.6	0.85447	0.37826	38.054	0.5	7.9	0.376	7.2	243.1	353.1	239.8	21.1W
JUL 12	5 55 22.5	21 1 20.8	0.89933	0.36665	39.566	0.2	7.5	0.432	6.9	253.3	354.2	248.5	20.9W
JUL 14	6 5 27.9	21 27 50.1	0.94570	0.35515	40.645	0.0	7.1	0.491	6.7	263.2	355.4	257.7	20.4W
JUL 16	6 16 52.8	21 51 54.2	0.99302	0.34406	41.193	-0.2	6.8	0.552	6.5	272.8	356.7	267.6	19.7W
JUL 18	6 29 34.5	22 12 1.0	1.04062	0.33375	41.099	-0.4	6.5	0.616	6.3	282.1	358.3	278.1	18.6W
JUL 20	6 43 28.7	22 26 35.5	1.08768	0.32462	40.252	-0.6	6.2	0.681	6.1	291.1	359.9	289.2	17.3W
JUL 22	6 58 29.3	22 34 4.7	1.13329	0.31709	38.565	-0.8	5.9	0.745	5.9	299.9	1.7	300.9	15.8W
JUL 24	7 14 27.3	22 33 3.2	1.17644	0.31154	36.003	-1.0	5.7	0.806	5.8	308.5	3.6	313.1	14.0W
JUL 26	7 31 11.4	22 22 21.8	1.21615	0.30829	32.612	-1.2	5.5	0.862	5.6	316.9	5.6	325.7	12.1W
JUL 28	7 48 28.2	22 1 15.6	1.25152	0.30756	28.528	-1.3	5.4	0.909	5.5	325.1	7.7	338.4	10.0W
JUL 30	8 6 3.2	21 29 29.4	1.28188	0.30938	23.969	-1.5	5.2	0.947	5.4	333.3	9.7	351.0	7.9W
AUG 1	8 23 41.8	20 47 18.8	1.30683	0.31364	19.191	-1.7	5.1	0.973	5.4	341.3	11.7	3.5	5.7W
AUG 3	8 41 11.4	19 55 26.4	1.32624	0.32008	14.443	-1.8	5.1	0.990	5.3	349.4	13.6	15.5	3.6W
AUG 5	8 58 21.3	18 54 54.3	1.34030	0.32835	9.928	-1.9	5.0	0.997	5.3	357.5	15.4	26.9	2.0W
AUG 7	9 15 4.1	17 46 54.9	1.34933	0.33803	5.778	-1.8	5.0	0.997	5.3	5.6	17.1	37.8	2.1E
AUG 9	9 31 14.9	16 32 43.6	1.35382	0.34872	2.060	-1.6	5.0	0.991	5.2	13.8	18.7	48.0	3.8E
AUG 11	9 46 51.1	15 13 32.8	1.35427	0.36003	-1.213	-1.4	5.0	0.980	5.2	22.1	20.1	57.6	5.7E
AUG 13	10 1 52.0	13 50 28.5	1.35119	0.37161	-4.066	-1.2	5.0	0.967	5.2	30.5	21.4	66.6	7.6E
AUG 15	10 16 18.1	12 24 29.0	1.34503	0.38318	-6.542	-1.0	5.0	0.951	5.3	39.0	22.6	75.1	9.4E
AUG 17	10 30 10.6	10 56 24.8	1.33621	0.39449	-8.693	-0.8	5.0	0.934	5.3	47.5	23.6	83.1	11.1E
AUG 19	10 43 31.3	9 26 59.2	1.32506	0.40534	-10.571	-0.7	5.1	0.917	5.3	56.2	24.5	90.6	12.8E
AUG 21	10 56 22.1	7 56 49.0	1.31188	0.41558	-12.225	-0.5	5.1	0.899	5.3	64.9	25.3	97.8	14.3E
AUG 23	11 8 45.0	6 26 25.6	1.29690	0.42508	-13.697	-0.4	5.2	0.881	5.4	73.8	26.0	104.6	15.8E
AUG 25	11 20 41.9	4 56 16.0	1.28030	0.43375	-15.025	-0.3	5.3	0.863	5.4	82.7	26.7	111.1	17.2E
AUG 27	11 32 14.4	3 26 43.8	1.26223	0.44150	-16.241	-0.3	5.3	0.844	5.4	91.7	27.2	117.4	18.5E
AUG 29	11 43 24.2	1 58 10.0	1.24281	0.44829	-17.371	-0.2	5.4	0.826	5.4	100.8	27.6	123.5	19.7E
AUG 31	11 54 12.3	0 30 53.6	1.22213	0.45405	-18.438	-0.1	5.5	0.807	5.5	110.0	28.0	129.5	20.8E
SEP 2	12 4 39.9	-0-54-47.7	1.20024	0.45876	-19.459	-0.1	5.6	0.787	5.5	119.3	28.2	135.3	21.8E
SEP 4	12 14 47.5	-2-18-37.0	1.17719	0.46240	-20.448	0.0	5.7	0.768	5.5	128.7	28.4	141.0	22.8E
SEP 6	12 24 35.4	-3-40-17.4	1.15301	0.46493	-21.414	0.0	5.8	0.747	5.5	138.2	28.6	146.6	23.6E
SEP 8	12 34 3.4	-4-59-31.9	1.12773	0.46636	-22.364	0.1	6.0	0.725	5.6	147.7	28.7	152.2	24.4E
SEP 10	12 43 11.0	-6-16-2.3	1.10136	0.46667	-23.300	0.1	6.1	0.703	5.6	157.4	28.7	157.7	25.1E
SEP 12	12 51 57.1	-7-29-28.7	1.07391	0.46587	-24.221	0.1	6.3	0.679	5.6	167.1	28.7	163.3	25.6E
SEP 14	13 0 19.7	-8-39-28.8	1.04541	0.46395	-25.121	0.1	6.4	0.653	5.7	177.0	28.6	168.9	26.1E
SEP 16	13 8 16.5	-9-45-36.9	1.01589	0.46093	-25.988	0.2	6.6	0.625	5.7	187.1	28.5	174.5	26.4E
SEP 18	13 15 43.9	-10-47-22.7	0.98540	0.45681	-26.801	0.2	6.8	0.594	5.7	197.2	28.4	180.2	26.5E
SEP 20	13 22 37.4	-11-44-10.2	0.95401	0.45163	-27.530	0.2	7.1	0.561	5.8	207.5	28.3	186.1	26.5E
SEP 22	13 28 51.4	-12-35-15.8	0.92185	0.44541	-28.131	0.3	7.3	0.525	5.8	218.1	28.1	192.1	26.3E
SEP 24	13 34 18.8	-13-19-46.6	0.88909	0.43819	-28.546	0.3	7.6	0.485	5.8	228.8	28.0	198.3	25.9E
SEP 26	13 38 50.7	-13-56-37.5	0.85600	0.43003	-28.694	0.4	7.9	0.441	5.8	239.8	27.8	204.7	25.2E
SEP 28	13 42 17.2	-14-24-29.7	0.82295	0.42098	-28.471	0.5	8.2	0.392	5.9	251.2	27.7	211.4	24.2E
SEP 30	13 44 26.5	-14-41-48.0	0.79043	0.41114	-27.736	0.7	8.5	0.339	5.9	262.8	27.6	218.3	22.9E
OCT 2	13 45 6.5	-14-46-42.0	0.75913	0.40061	-26.314	0.9	8.9	0.282	5.9	274.9	27.6	225.6	21.1E
OCT 4	13 44 5.6	-14-37-10.2	0.72998	0.38953	-23.993	1.2	9.2	0.222	5.8	287.5	27.6	233.4	18.9E
OCT 6	13 41 15.8	-14-11-15.2	0.70413	0.37808	-20.540	1.7	9.6	0.161	5.8	300.6	27.7	241.6	16.2E
OCT 8	13 36 35.6	-13-27-32.0	0.68303	0.36648	-15.738	2.3	9.8	0.103	5.7	314.2	27.9	250.3	12.9E
OCT 10	13 30 15.5	-12-25-55.1	0.66833	0.35498	-9.456	3.1	10.1	0.053	5.5	328.3	28.1	259.5	9.1E
OCT 12	13 22 41.5	-11-8-35.2	0.66173	0.34390	-1.737	4.3	10.2	0.017	5.2	342.9	28.2	269.4	5.1E
OCT 14	13 14 35.6	-9-40-39.6	0.66473	0.33361	7.108	5.4	10.1	0.002	4.9	357.6	28.4	279.9	1.7W
OCT 16	13 6 51.6	-8-9-60.0	0.67833	0.32450	16.494	4.4	9.9	0.013	4.5	12.3	28.5	291.0	4.3W
OCT 18	13 0 24.6	-6-45-47.9	0.70272	0.31699	25.640	3.0	9.6	0.053	4.0	26.6	28.5	302.8	8.2W
OCT 20	12 55 59.8	-5-36-26.3	0.73714	0.31147	33.760	1.9	9.1	0.117	3.5	40.4	28.6	315.0	11.6W
OCT 22	12 54 4.1	-4-47-42.4	0.78005	0.30826	40.234	1.0	8.6	0.202	3.0	53.5	28.6	327.5	14.4W
OCT 24	12 54 45.2	-4-22-6.1	0.82931	0.30757	44.727	0.4	8.1	0.297	2.6	65.9	28.5	340.2	16.4W
OCT 26	12 57 54.4	-4-19-12.9	0.88259	0.30943	47.198	0.0	7.6	0.396	2.1	77.5	28.5	352.9	17.7W
OCT 28	13 3 13.1	-4-36-40.1	0.93764	0.31372	47.844	-0.3	7.2	0.492	1.8	88.4	28.5	5.3	18.4W
OCT 30	13 10 18.6	-5-11-5.3	0.99254	0.32020	47.007	-0.5	6.8	0.580	1.4	98.9	28.4	17.3	18.6W
NOV 1	13 18 48.4	-5-58-51.4	1.04582	0.32849	45.077	-0.6	6.4	0.658	1.1	108.9	28.2	28.8	18.3W
NOV 3	13 28 22.5	-6-56-34.6	1.09641	0.33819	42.420	-0.7	6.1	0.724	0.9	118.6	28.0	39.6	17.7W
NOV 5	13 38 44.8	-8-1-17.8	1.14366	0.34889	39.340	-0.7	5.9	0.780	0.6	128.1	27.7	49.8	17.0W
NOV 7	13 49 42.5	-9-10-35.1	1.18723	0.36020	36.064	-0.8	5.7	0.826	0.4	137.5	27.3	59.4	16.0W
NOV 9	14 1 6.3	-10-22-29.7	1.22697	0.37179	32.750	-0.8	5.5	0.863	0.2	146.7	26.8	68.4	15.0W
NOV 11	14 12 49.6	-11-35-29.9	1.26292	0.38335	29.496	-0.8	5.3	0.893	0.0	155.9	26.3	76.9	13.8W
NOV 13	14 24 47.6	-12-48-24.5	1.29517	0.39465	26.360	-0.8	5.2	0.918	-0.2	165.0	25.6	84.9	12.7W
NOV 15	14 36 57.1	-14 0-18.4	1.32388	0.40550	23.373	-0.8	5.1	0.937	-0.4	174.1	24.9	92.4	11.5W
NOV 17	14 49 16.1	-15-10-28.7	1.34923	0.41573	20.542	-0.8	5.0	0.953	-0.6	183.2	24.1	99.6	10.3W
NOV 19	15 1 43.3	-16-18-21.5	1.37140	0.42522	17.865	-0.8	4.9	0.965	-0.7	192.2	23.2	106.4	9.1W
NOV 21	15 14 17.9	-17-23-29.8	1.39057	0.43387	15.333	-0.8	4.8	0.975	-0.9	201.3	22.3	112.9	7.9W
NOV 23	15 26 59.6	-18-25-31.5	1.40688	0.44162	12.930	-0.9	4.8	0.983	-1.0	210.4	21.2	119.2	6.7W
NOV 25	15 39 48.2	-19-24-8.0	1.42049	0.44838	10.640	-0.9	4.7	0.988	-1.2	219.5	20.1	125.3	5.6W
NOV 27	15 52 43.6	-20-19-3.4	1.43151	0.45413	8.446	-1.0	4.7	0.993	-1.4	228.6	19.0	131.3	4.4W
NOV 29	16 5 46.1	-21-10-3.5	1.44004	0.45883	6.331	-1.0	4.7	0.996	-1.5	237.7	17.7	137.1	3.3W
DEC 1	16 18 55.6	-21-56-55.4	1.44616	0.46244	4.278	-1.1	4.7	0.998	-1.7	246.8	16.4	142.8	2.2W
DEC 3	16 32 12.3	-22-39-27.1	1.44994	0.46496	2.270	-1.1	4.6	0.999	-1.8	256.0	15.1	148.4	1.3W
DEC 5	16 45 36.0	-23-17-26.9	1.45142	0.46638	0.290	-1.1	4.6	1.000	-2.0	265.1	13.7	154.0	0.9W
DEC 7	16 59 6.7	-23-50-43.7	1.45062	0.46667	-1.678	-1.1	4.6	0.999	-2.1	274.2	12.2	159.5	1.6E
DEC 9	17 12 44.2	-24-19-6.3	1.44755	0.46585	-3.649	-1.0	4.6	0.998	-2.3				

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	19 58 22.6	-22-41-22.5	1.21181	0.37791	-32.745	-0.7	5.6	0.852	-4.5	32.8	351.2	243.4	15.8E	
JAN 4	20 11 1.3	-21-55-7.7	1.17221	0.36630	-35.825	-0.7	5.7	0.815	-4.8	42.1	349.8	252.1	16.8E	
JAN 6	20 23 2.1	-21-4-5.8	1.12907	0.35481	-38.871	-0.7	6.0	0.771	-5.1	51.4	348.4	261.4	17.7E	
JAN 8	20 34 12.7	-20-9-12.0	1.08248	0.34374	-41.746	-0.7	6.2	0.717	-5.5	61.0	347.2	271.3	18.4E	
JAN 10	20 44 17.3	-19-11-45.4	1.03278	0.33346	-44.243	-0.6	6.5	0.653	-5.8	70.7	346.1	281.8	18.8E	
JAN 12	20 52 56.8	-18-13-33.5	0.98053	0.32437	-46.080	-0.5	6.9	0.578	-6.3	80.7	345.1	293.0	19.0E	
JAN 14	20 59 48.3	-17-16-55.9	0.92672	0.31689	-46.903	-0.3	7.3	0.493	-6.8	91.2	344.4	304.7	18.8E	
JAN 16	21 4 26.8	-16-24-42.6	0.87272	0.31140	-46.320	0.0	7.7	0.400	-7.3	102.1	343.9	316.9	18.1E	
JAN 18	21 6 27.6	-15-40-3.9	0.82039	0.30823	-43.959	0.4	8.2	0.302	-7.9	113.7	343.7	329.5	16.7E	
JAN 20	21 5 31.6	-15-6-7.9	0.77194	0.30757	-39.573	1.0	8.7	0.208	-8.5	126.1	343.8	342.2	14.7E	
JAN 22	21 1 32.5	-14-45-25.5	0.72974	0.30947	-33.147	1.8	9.2	0.123	-9.1	139.2	344.1	354.9	11.9E	
JAN 24	20 54 44.1	-14-39-10.0	0.69602	0.31380	-24.982	2.8	9.7	0.058	-9.6	153.1	344.8	7.3	8.6E	
JAN 26	20 45 45.0	-14-46-46.3	0.67244	0.32030	-15.705	4.0	10.0	0.019	-10.0	167.5	345.8	19.3	5.1E	
JAN 28	20 35 35.3	-15-5-52.0	0.65981	0.32862	-6.153	4.7	10.2	0.008	-10.3	182.3	346.9	30.7	3.5W	
JAN 30	20 25 25.1	-15-32-54.8	0.65797	0.33834	2.833	3.9	10.2	0.025	-10.4	197.1	348.0	41.6	6.2W	
FEB 1	20 16 18.7	-16-4-8.6	0.66587	0.34906	10.616	2.9	10.1	0.064	-10.3	211.7	349.0	51.8	10.0W	
FEB 3	20 9 2.5	-16-36-20.6	0.68189	0.36038	16.873	2.1	9.9	0.117	-10.1	225.8	349.9	61.4	13.6W	
FEB 5	20 4 1.2	-17-7-9.7	0.70423	0.37196	21.573	1.5	9.6	0.178	-9.8	239.3	350.5	70.4	16.8W	
FEB 7	20 1 20.4	-17-35-3.0	0.73117	0.38352	24.873	1.0	9.2	0.240	-9.5	252.3	350.8	78.8	19.4W	
FEB 9	20 0 53.5	-17-59-3.5	0.76124	0.39482	27.015	0.7	8.8	0.302	-9.1	264.8	350.8	86.8	21.6W	
FEB 11	20 2 27.0	-18-18-36.4	0.79323	0.40566	28.251	0.5	8.5	0.360	-8.7	276.7	350.7	94.3	23.2W	
FEB 13	20 5 45.3	-18-33-20.7	0.82624	0.41588	28.807	0.4	8.1	0.413	-8.3	288.3	350.3	101.5	24.5W	
FEB 15	20 10 32.8	-18-43-3.5	0.85959	0.42536	28.867	0.3	7.8	0.462	-8.0	299.4	349.8	108.3	25.4W	
FEB 17	20 16 35.5	-18-47-36.6	0.89279	0.43400	28.573	0.2	7.5	0.506	-7.6	310.3	349.1	114.9	26.0W	
FEB 19	20 23 40.9	-18-46-55.4	0.92551	0.44173	28.032	0.2	7.3	0.546	-7.3	320.9	348.3	121.2	26.4W	
FEB 21	20 31 38.7	-18-40-57.0	0.95749	0.44848	27.324	0.1	7.0	0.581	-7.0	331.3	347.4	127.3	26.6W	
FEB 23	20 40 20.2	-18-29-40.2	0.98859	0.45421	26.506	0.1	6.8	0.614	-6.7	341.5	346.5	133.2	26.6W	
FEB 25	20 49 38.3	-18-13-5.0	1.01870	0.45889	25.618	0.1	6.6	0.644	-6.5	351.6	345.5	139.0	26.4W	
FEB 27	20 59 26.9	-17-51-12.0	1.04776	0.46249	24.688	0.1	6.4	0.671	-6.2	1.5	344.5	144.7	26.0W	
MAR 1	21 9 41.5	-17-24-2.3	1.07573	0.46499	23.732	0.1	6.3	0.696	-6.0	11.3	343.4	150.3	25.6W	
MAR 3	21 20 18.0	-16-51-37.6	1.10258	0.46639	22.761	0.0	6.1	0.719	-5.8	21.0	342.4	155.9	25.0W	
MAR 5	21 31 13.4	-16-13-59.9	1.12831	0.46667	21.781	0.0	6.0	0.741	-5.5	30.6	341.3	161.4	24.4W	
MAR 7	21 42 25.1	-15-31-11.7	1.15290	0.46583	20.794	0.0	5.8	0.761	-5.3	40.0	340.3	167.0	23.6W	
MAR 9	21 53 51.1	-14-43-15.8	1.17635	0.46387	19.798	-0.1	5.7	0.781	-5.1	49.4	339.3	172.6	22.7W	
MAR 11	22 5 30.0	-13-50-15.3	1.19864	0.46082	18.788	-0.1	5.6	0.800	-4.9	58.8	338.3	178.2	21.8W	
MAR 13	22 17 20.6	-12-52-13.4	1.21974	0.45667	17.754	-0.1	5.5	0.818	-4.7	68.0	337.4	184.0	20.8W	
MAR 15	22 29 22.3	-11-49-13.2	1.23964	0.45146	16.685	-0.2	5.4	0.836	-4.6	77.1	336.5	189.9	19.7W	
MAR 17	22 41 34.7	-10-41-18.5	1.25827	0.44521	15.565	-0.3	5.3	0.853	-4.4	86.2	335.6	195.9	18.5W	
MAR 19	22 53 57.9	-9-28-33.2	1.27557	0.43796	14.373	-0.4	5.3	0.871	-4.2	95.2	334.8	202.1	17.2W	
MAR 21	23 6 32.0	-8-11-1.8	1.29145	0.42977	13.085	-0.4	5.2	0.888	-4.0	104.1	334.1	208.5	15.8W	
MAR 23	23 19 17.6	-6-48-49.6	1.30576	0.42069	11.671	-0.6	5.2	0.905	-3.9	112.9	333.5	215.2	14.4W	
MAR 25	23 32 15.5	-5-22-3.1	1.31835	0.41083	10.097	-0.7	5.1	0.921	-3.7	121.7	332.9	222.1	12.8W	
MAR 27	23 45 26.6	-3-50-50.7	1.32901	0.40028	8.320	-0.8	5.1	0.938	-3.5	130.3	332.4	229.5	11.2W	
MAR 29	23 58 51.9	-2-15-23.0	1.33748	0.38919	6.294	-1.0	5.0	0.953	-3.4	138.9	332.0	237.2	9.5W	
MAR 31	0 12 32.7	0-35-54.6	1.34344	0.37773	3.966	-1.1	5.0	0.968	-3.2	147.4	331.7	245.4	7.7W	
APR 2	0 26 30.0	1 7 14.8	1.34651	0.36612	1.284	-1.4	5.0	0.981	-3.1	155.8	331.5	254.2	5.8W	
APR 4	0 40 44.6	2 53 38.3	1.34626	0.35463	-1.800	-1.6	5.0	0.991	-2.9	164.1	331.4	263.4	3.8W	
APR 6	0 55 17.0	4 42 39.5	1.34220	0.34357	-5.316	-1.8	5.0	0.998	-2.8	172.3	331.5	273.3	1.8W	
APR 8	1 10 6.6	6 33 30.1	1.33382	0.33331	-9.270	-2.0	5.0	0.999	-2.7	180.4	331.6	283.9	1.1E	
APR 10	1 25 12.0	8 25 8.4	1.32064	0.32424	-13.619	-1.9	5.1	0.994	-2.5	188.5	331.9	295.0	2.9E	
APR 12	1 40 30.1	10 16 17.7	1.30226	0.31678	-18.261	-1.7	5.2	0.980	-2.4	196.6	332.4	306.8	5.1E	
APR 14	1 55 56.1	12 5 27.9	1.27842	0.31133	-23.023	-1.6	5.3	0.956	-2.3	204.7	332.9	319.0	7.3E	
APR 16	2 11 23.3	13 50 59.5	1.24913	0.30820	-27.672	-1.4	5.4	0.921	-2.2	212.8	333.6	331.6	9.5E	
APR 18	2 26 43.3	15 31 10.5	1.21465	0.30758	-31.948	-1.3	5.5	0.876	-2.0	221.0	334.5	344.3	11.6E	
APR 20	2 41 46.6	17 4 25.6	1.17557	0.30952	-35.606	-1.1	5.7	0.822	-1.9	229.3	335.4	357.0	13.6E	
APR 22	2 56 23.0	18 29 24.7	1.13271	0.31388	-38.467	-0.9	5.9	0.761	-1.8	237.9	336.4	9.4	15.4E	
APR 24	3 10 22.9	19 45 8.7	1.08705	0.32042	-40.442	-0.7	6.2	0.696	-1.6	246.6	337.4	21.4	17.0E	
APR 26	3 23 37.2	20 51 1.4	1.03963	0.32876	-41.532	-0.5	6.5	0.629	-1.5	255.6	338.5	32.8	18.4E	
APR 28	3 35 58.0	21 46 47.7	0.99142	0.33850	-41.806	-0.3	6.8	0.563	-1.3	264.9	339.5	43.7	19.5E	
APR 30	3 47 18.5	22 32 29.1	0.94332	0.34923	-41.369	-0.1	7.1	0.498	-1.2	274.4	340.5	53.9	20.3E	
MAY 2	3 57 32.7	23 8 18.7	0.89608	0.36055	-40.336	0.1	7.5	0.436	-1.0	284.3	341.5	63.4	20.8E	
MAY 4	4 6 35.4	23 34 36.2	0.85032	0.37214	-38.813	0.4	7.9	0.378	-0.7	294.4	342.4	72.4	21.0E	
MAY 6	4 14 22.0	23 51 44.4	0.80657	0.38370	-36.887	0.7	8.3	0.322	-0.5	304.9	343.1	80.9	20.8E	
MAY 8	4 20 48.8	24 0 6.9	0.76523	0.39499	-34.625	1.0	8.8	0.271	-0.2	315.8	343.8	88.9	20.4E	
MAY 10	4 25 52.5	24 0 6.7	0.72668	0.40582	-32.072	1.3	9.3	0.223	0.1	326.9	344.3	96.4	19.6E	
MAY 12	4 29 31.1	23 52 6.4	0.69123	0.41603	-29.259	1.7	9.7	0.179	0.5	338.4	344.7	103.5	18.4E	
MAY 14	4 31 44.2	23 36 29.6	0.65917	0.42550	-26.207	2.1	10.2	0.138	0.9	350.3	344.9	110.4	16.9E	
MAY 16	4 32 33.1	23 13 43.3	0.63077	0.43413	-22.929	2.5	10.7	0.102	1.3	2.5	345.0	116.9	15.1E	
MAY 18	4 32 2.0	22 44 21.6	0.60627	0.44184	-19.440	3.0	11.1	0.071	1.7	15.0	344.9	123.2	12.9E	
MAY 20	4 30 18.0	22 9 10.5	0.58592	0.44858	-15.762	3.6	11.5	0.044	2.2	27.8	344.7	129.3	10.5E	
MAY 22	4 27 31.8	21 29 12.1	0.56991	0.45429	-11.927	4.2	11.8	0.024	2.7	40.9	344.4	135.2	7.8E	
MAY 24	4 23 57.4	20 45 47.4	0.55840	0.45896	-7.979	4.9	12.0	0.009	3.1	54.2	344.1	141.0	5.0E	
MAY 26	4 19 51.7	20 0 36.4	0.55148	0.46254	-3.978	5.6	12.2	0.002	3.6	67.6	343.6	146.7	2.4E	
MAY 28	4 15 33.1	19 15 33.6	0.54919	0.46502	0.010	5.7	12.3	0.002	4.0	81.1	343.2	152.4	2.3W	
MAY 30	4 11 20.3	18 32 38.9	0.55146	0.46640	3.917	5.0	12.2	0.008	4.4	94.5	342.8	157.9	4.8W	
JUN 1	4 7 30.9	17 53 47.5	0.55817	0.46666	7.682	4.3	12.1	0.021	4.8	107.8	342.4	163.5	7.6W	
JUN 3	4 4 20.1	17 20 39.2	0.56912	0.46580	11.256	3.7	11.8	0.040	5.0	121.0	342.1	169.1	10.4W	
JUN 5	4 1 60.0	16 54 30.8	0.58408	0.46384	14.610	3.2	11.5	0.063	5.3	134.0	341.8	174.7	12.9W	
JUN 7	4 0 39.4	16 36 12.5	0.60277	0.46076	17.726	2.7	11.2	0.091	5.5	146.6	341.7	180.3	15.1W	
JUN 9	4 0 24.3	16 26 8.0	0.62493	0.45660	20.605	2.3	10.8	0.122	5.6	159.0	341.7	186.1	17.1W	
JUN 11	4 1 17.9													

2002 MERCURY

Geocentric Planetary Ephemeris

2002 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	5 13 14.3	21 12 18.6	1.02678	0.35446	37.997	-0.3	6.6	0.601	5.4	276.1	349.3	265.6	20.0W		
JUL 3	5 26 34.5	21 49 48.5	1.07054	0.34340	37.665	-0.5	6.3	0.657	5.3	285.2	350.8	275.5	18.7W		
JUL 5	5 40 59.7	22 23 48.7	1.11356	0.33316	36.703	-0.7	6.0	0.714	5.2	294.1	352.5	286.1	17.2W		
JUL 7	5 56 27.1	22 52 45.2	1.15505	0.32411	35.016	-0.8	5.8	0.771	5.1	302.7	354.3	297.2	15.6W		
JUL 9	6 12 51.7	23 15 2.9	1.19415	0.31668	32.541	-1.0	5.6	0.826	5.1	311.2	356.3	309.0	13.7W		
JUL 11	6 30 5.9	23 29 10.9	1.22993	0.31127	29.272	-1.2	5.5	0.876	5.0	319.5	358.3	321.2	11.6W		
JUL 13	6 47 59.4	23 33 51.3	1.26151	0.30817	25.292	-1.4	5.3	0.920	5.0	327.7	0.5	333.8	9.5W		
JUL 15	7 6 19.6	23 28 7.0	1.28816	0.30759	20.767	-1.6	5.2	0.955	5.0	335.7	2.7	346.5	7.2W		
JUL 17	7 24 52.5	23 11 29.5	1.30938	0.30957	15.933	-1.8	5.1	0.979	5.0	343.7	4.9	359.2	5.0W		
JUL 19	7 43 24.1	22 44 0.7	1.32496	0.31397	11.048	-1.9	5.1	0.994	5.0	351.7	7.1	11.6	2.8W		
JUL 21	8 1 41.7	22 6 11.2	1.33499	0.32054	6.346	-2.0	5.0	0.998	5.0	359.7	9.2	23.6	1.6E		
JUL 23	8 19 35.1	21 18 53.4	1.33978	0.32890	2.002	-1.8	5.0	0.994	5.0	7.7	11.2	35.0	2.8E		
JUL 25	8 36 56.4	20 23 13.2	1.33980	0.33866	-1.882	-1.6	5.0	0.984	5.1	15.8	13.1	45.9	4.8E		
JUL 27	8 53 40.8	19 20 22.3	1.33563	0.34940	-5.270	-1.3	5.0	0.969	5.2	24.0	14.9	56.1	6.9E		
JUL 29	9 9 45.8	18 11 32.0	1.32783	0.36073	-8.173	-1.1	5.1	0.950	5.2	32.3	16.6	65.6	8.9E		
JUL 31	9 25 10.3	16 57 49.3	1.31693	0.37232	-10.636	-0.9	5.1	0.930	5.3	40.7	18.1	74.6	10.8E		
AUG 2	9 39 54.9	15 40 15.1	1.30341	0.38388	-12.713	-0.8	5.2	0.908	5.4	49.2	19.5	83.1	12.6E		
AUG 4	9 54 0.8	14 19 43.3	1.28769	0.39516	-14.467	-0.6	5.2	0.886	5.5	57.8	20.7	91.0	14.3E		
AUG 6	10 7 29.7	12 57 1.1	1.27009	0.40598	-15.956	-0.5	5.3	0.863	5.6	66.5	21.9	98.6	16.0E		
AUG 8	10 20 23.4	11 32 50.0	1.25091	0.41618	-17.231	-0.4	5.4	0.841	5.7	75.3	22.9	105.7	17.5E		
AUG 10	10 32 43.8	10 7 46.1	1.23036	0.42564	-18.337	-0.3	5.5	0.819	5.8	84.2	23.8	112.5	18.9E		
AUG 12	10 44 32.6	8 42 21.3	1.20860	0.43425	-19.311	-0.2	5.6	0.796	5.9	93.2	24.6	119.1	20.2E		
AUG 14	10 55 51.3	7 17 4.3	1.18579	0.44195	-20.183	-0.1	5.7	0.774	6.0	102.3	25.3	125.4	21.4E		
AUG 16	11 6 41.4	5 52 21.1	1.16201	0.44867	-20.975	-0.1	5.8	0.752	6.1	111.6	26.0	131.5	22.5E		
AUG 18	11 17 3.7	4 28 35.9	1.13736	0.45437	-21.707	0.0	5.9	0.730	6.2	120.9	26.5	137.4	23.5E		
AUG 20	11 26 58.8	3 6 12.0	1.11188	0.45902	-22.393	0.1	6.1	0.707	6.3	130.3	27.0	143.2	24.4E		
AUG 22	11 36 27.0	1 45 32.4	1.08564	0.46258	-23.042	0.1	6.2	0.684	6.4	139.9	27.4	148.9	25.2E		
AUG 24	11 45 28.0	0 26 59.9	1.05866	0.46505	-23.659	0.1	6.4	0.660	6.5	149.5	27.7	154.5	25.8E		
AUG 26	11 54 1.1	0-49 -1.0	1.03099	0.46641	-24.245	0.2	6.5	0.635	6.7	159.3	28.0	160.1	26.4E		
AUG 28	12 2 5.0	-2 -2 -4.4	1.00267	0.46665	-24.795	0.2	6.7	0.608	6.8	169.2	28.2	165.7	26.8E		
AUG 30	12 9 37.7	-3-11-41.2	0.97373	0.46578	-25.300	0.3	6.9	0.580	6.9	179.3	28.4	171.3	27.1E		
SEP 1	12 16 36.5	-4-17-18.5	0.94425	0.46379	-25.743	0.3	7.1	0.550	7.0	189.5	28.6	176.9	27.2E		
SEP 3	12 22 57.9	-5-18-18.0	0.91430	0.46070	-26.098	0.4	7.4	0.518	7.2	199.9	28.7	182.5	27.2E		
SEP 5	12 28 37.2	-6-13-54.4	0.88400	0.45652	-26.333	0.4	7.6	0.483	7.3	210.5	28.7	188.3	26.9E		
SEP 7	12 33 28.8	-7 -3-13.9	0.85353	0.45128	-26.398	0.5	7.9	0.446	7.5	221.3	28.8	194.2	26.4E		
SEP 9	12 37 25.9	-7-45-12.2	0.82311	0.44500	-26.229	0.6	8.2	0.405	7.6	232.3	28.8	200.2	25.7E		
SEP 11	12 40 20.8	-8-18-33.0	0.79305	0.43772	-25.741	0.7	8.5	0.361	7.7	243.7	28.8	206.4	24.7E		
SEP 13	12 42 4.9	-8-41-46.7	0.76380	0.42950	-24.825	0.9	8.8	0.314	7.9	255.4	28.8	212.8	23.3E		
SEP 15	12 42 29.1	-8-53-11.5	0.73592	0.42040	-23.348	1.1	9.1	0.263	8.0	267.5	28.9	219.5	21.6E		
SEP 17	12 41 25.5	-8-50-58.7	0.71014	0.41051	-21.153	1.4	9.5	0.211	8.1	280.0	28.9	226.5	19.5E		
SEP 19	12 38 48.7	-8-33-24.2	0.68738	0.39994	-18.069	1.8	9.8	0.157	8.1	293.0	28.9	233.9	16.9E		
SEP 21	12 34 38.5	-7-59-10.3	0.66879	0.38884	-13.932	2.3	10.1	0.106	8.1	306.5	28.8	241.6	13.8E		
SEP 23	12 29 3.1	-7 -7-58.9	0.65564	0.37737	-8.625	3.0	10.3	0.061	8.1	320.4	28.8	249.9	10.4E		
SEP 25	12 22 21.7	-6 -1-12.1	0.64930	0.36577	-2.135	4.0	10.4	0.026	7.9	334.7	28.7	258.6	6.6E		
SEP 27	12 15 5.9	-4-42-25.3	0.65108	0.35428	5.390	4.9	10.3	0.006	7.6	349.2	28.6	267.9	3.3E		
SEP 29	12 7 57.3	-3-17-30.1	0.66200	0.34324	13.611	4.8	10.2	0.007	7.2	3.8	28.4	277.9	3.4W		
OCT 1	12 1 42.0	-1-53-52.4	0.68258	0.33301	22.020	3.7	9.9	0.032	6.7	18.1	28.2	288.4	6.7W		
OCT 3	11 57 2.8	0-39-11.3	0.71269	0.32399	30.021	2.5	9.4	0.079	6.2	32.0	28.1	299.6	10.1W		
OCT 5	11 54 31.4	0 20 7.5	0.75153	0.31659	37.038	1.6	9.0	0.148	5.6	45.3	28.0	311.4	13.0W		
OCT 7	11 54 25.1	0 59 48.8	0.79768	0.31120	42.609	0.8	8.4	0.232	5.0	57.9	27.9	323.6	15.2W		
OCT 9	11 56 45.9	1 18 2.7	0.84928	0.30815	46.453	0.3	7.9	0.326	4.5	69.8	28.0	336.2	16.8W		
OCT 11	12 1 23.9	1 15 5.4	0.90429	0.30761	48.491	-0.1	7.4	0.424	4.0	81.0	28.1	348.9	17.7W		
OCT 13	12 8 1.2	0 52 44.5	0.96065	0.30962	48.831	-0.4	7.0	0.519	3.5	91.7	28.2	1.6	18.1W		
OCT 15	12 16 16.2	0 13 41.7	1.01654	0.31406	47.729	-0.6	6.6	0.608	3.1	101.8	28.4	14.0	17.9W		
OCT 17	12 25 47.3	0-38-58.8	1.07049	0.32066	45.523	-0.7	6.3	0.686	2.8	111.6	28.5	26.0	17.4W		
OCT 19	12 36 15.1	-1-42-14.1	1.12143	0.32905	42.563	-0.8	6.0	0.753	2.4	121.0	28.6	37.4	16.6W		
OCT 21	12 47 23.5	-2-53-17.5	1.16866	0.33882	39.159	-0.9	5.8	0.809	2.1	130.3	28.6	48.2	15.5W		
OCT 23	12 59 0.0	-4 -9-45.5	1.21183	0.34957	35.559	-0.9	5.6	0.855	1.9	139.4	28.5	58.4	14.3W		
OCT 25	13 10 55.4	-5-29-39.6	1.25081	0.36091	31.936	-0.9	5.4	0.891	1.6	148.5	28.3	68.0	13.1W		
OCT 27	13 23 3.0	-6-51-24.8	1.28565	0.37250	28.403	-0.9	5.2	0.920	1.4	157.4	28.1	77.0	11.8W		
OCT 29	13 35 18.7	-8-13-46.1	1.31650	0.38406	25.026	-0.9	5.1	0.942	1.2	166.4	27.8	85.4	10.4W		
OCT 31	13 47 39.4	-9-35-45.1	1.34355	0.39533	21.833	-1.0	5.0	0.959	1.0	175.3	27.4	93.4	9.1W		
NOV 2	14 0 3.7	-10-56-36.0	1.36702	0.40615	18.832	-1.0	4.9	0.972	0.8	184.3	26.9	100.9	7.7W		
NOV 4	14 12 30.8	-12-15-43.1	1.38713	0.41633	16.016	-1.0	4.9	0.982	0.6	193.2	26.3	108.0	6.4W		
NOV 6	14 25 0.2	-13-32-38.1	1.40409	0.42578	13.374	-1.1	4.8	0.989	0.4	202.2	25.6	114.9	5.1W		
NOV 8	14 37 32.2	-14-46-58.0	1.41809	0.43438	10.886	-1.1	4.7	0.994	0.3	211.2	24.9	121.4	3.8W		
NOV 10	14 50 7.1	-15-58-24.1	1.42930	0.44206	8.533	-1.1	4.7	0.998	0.1	220.2	24.0	127.7	2.5W		
NOV 12	15 2 45.2	-17 -6-40.3	1.43786	0.44876	6.295	-1.2	4.7	0.999	-0.1	229.3	23.1	133.8	1.3W		
NOV 14	15 15 27.1	-18-11-32.7	1.44389	0.45445	4.152	-1.3	4.7	1.000	-0.3	238.3	22.2	139.7	0.2W		
NOV 16	15 28 13.4	-19-12-48.8	1.44748	0.45908	2.084	-1.2	4.6	1.000	-0.4	247.4	21.1	145.5	1.1E		
NOV 18	15 41 4.5	-20-10-16.8	1.44873	0.46263	0.072	-1.1	4.6	0.998	-0.6	256.5	20.0	151.2	2.3E		
NOV 20	15 54 0.8	-21 -3-45.9	1.44767	0.46508	-1.899	-1.0	4.6	0.996	-0.8	265.7	18.8	156.9	3.4E		
NOV 22	16 7 2.8	-21-53 -5.1	1.44435	0.46642	-3.848	-0.9	4.7	0.993	-0.9	274.8	17.6	162.4	4.6E		
NOV 24	16 20 10.5	-22-38 -3.7	1.43879	0.46665	-5.790	-0.8	4.7	0.989	-1.1	284.0	16.3	168.0	5.7E		
NOV 26	16 33 23.9	-23-18-30.8	1.43098	0.46576	-7.741	-0.7	4.7	0.984	-1.3	293.1	15.0	173.6	6.8E		
NOV 28	16 46 42.9	-23-54-15.6	1.42090	0.46375	-9.714	-0.7	4.7	0.978	-1.4	302.3	13.5	179.2	7.9E		
NOV 30	17 0 7.0	-24-25 -7.1	1.40853	0.46065	-11.726	-0.6	4.8	0.971	-1.6	311.5	12.1	184.9	9.0E		
DEC 2	17 13 35.5	-24-50-54.3	1.39380	0.45645	-13.790	-0.6	4.8	0.963	-1.8	320.7	10.6	190.6	10.0E		
DEC 4	17 27 7.5	-25-11-26.4	1.37665	0.45119	-15.918	-0.6	4.9	0.954	-2.0	329.9	9.1	196.5	11.1E		
DEC 6	17 40 41.3	-25-26-33.1	1.35700	0.44489	-18.122	-0.6	5.0	0.942	-2.2	339.1	7.5	202.5	12.1E		
DEC 8	17 54 15.3	-25-36 -4.9	1.33476	0.437											

2003 MERCURY

Geocentric Planetary Ephemeris

2003 MERCURY

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	20 1 18.0	-20-43-24.8	0.84880	0.31649	-43.888	0.1	7.9	0.364	-6.4	106.3	350.8	313.8	18.0E	
JAN 3	20 1 58.3	-20 -6-37.6	0.79959	0.31114	-40.967	0.6	8.4	0.268	-7.0	118.3	350.8	326.1	16.3E	
JAN 5	19 59 26.7	-19-35-48.7	0.75498	0.30812	-35.885	1.2	8.9	0.176	-7.6	131.1	351.0	338.7	13.8E	
JAN 7	19 53 39.9	-19-12-43.8	0.71753	0.30762	-28.597	2.1	9.4	0.095	-8.1	144.7	351.7	351.4	10.6E	
JAN 9	19 45 0.8	-18-58-12.9	0.68961	0.30967	-19.459	3.3	9.8	0.037	-8.7	159.0	352.7	4.1	6.8E	
JAN 11	19 34 23.4	-18-52 -0.7	0.67296	0.31415	-9.257	4.6	10.0	0.009	-9.1	173.7	353.9	16.5	3.4E	
JAN 13	19 23 4.7	-18-53 -2.4	0.66821	0.32077	0.968	4.4	10.1	0.013	-9.3	188.7	355.3	28.5	4.2W	
JAN 15	19 12 26.9	-18-59-53.9	0.67479	0.32919	10.228	3.2	10.0	0.046	-9.4	203.6	356.6	39.9	8.0W	
JAN 17	19 3 36.3	-19-11-13.8	0.69118	0.33898	17.865	2.2	9.7	0.100	-9.3	218.0	357.6	50.7	11.9W	
JAN 19	18 57 12.5	-19-25-48.6	0.71532	0.34974	23.640	1.5	9.4	0.166	-9.1	231.8	358.4	60.9	15.3W	
JAN 21	18 53 28.7	-19-42-29.0	0.74510	0.36109	27.647	1.0	9.0	0.237	-8.8	244.9	358.9	70.5	18.2W	
JAN 23	18 52 19.6	-20 0 -7.7	0.77860	0.37268	30.156	0.6	8.6	0.307	-8.5	257.5	359.0	79.5	20.4W	
JAN 25	18 53 29.6	-20-17-40.2	0.81430	0.38423	31.490	0.4	8.3	0.373	-8.2	269.5	358.9	87.9	22.2W	
JAN 27	18 56 39.8	-20-34 -7.9	0.85101	0.39550	31.949	0.2	7.9	0.434	-7.9	281.0	358.5	95.8	23.5W	
JAN 29	19 1 30.9	-20-48-39.8	0.88787	0.40631	31.781	0.1	7.6	0.488	-7.7	292.2	357.9	103.4	24.4W	
JAN 31	19 7 45.9	-21 0-33.2	0.92427	0.41648	31.178	0.1	7.3	0.537	-7.4	303.0	357.1	110.5	24.9W	
FEB 2	19 15 10.0	-21 -9-13.1	0.95979	0.42591	30.283	0.0	7.0	0.580	-7.2	313.5	356.3	117.3	25.2W	
FEB 4	19 23 31.0	-21-14-11.7	0.99416	0.43450	29.199	0.0	6.8	0.619	-6.9	323.9	355.3	123.9	25.3W	
FEB 6	19 32 38.9	-21-15 -6.8	1.02720	0.44217	27.999	0.0	6.5	0.653	-6.7	334.0	354.2	130.2	25.3W	
FEB 8	19 42 25.4	-21-11-41.4	1.05882	0.44886	26.734	0.0	6.4	0.684	-6.5	344.0	353.0	136.3	25.0W	
FEB 10	19 52 44.0	-21 -3-42.1	1.08896	0.45453	25.436	0.0	6.2	0.712	-6.3	353.8	351.8	142.2	24.7W	
FEB 12	20 3 29.1	-20-50-58.8	1.11758	0.45914	24.128	0.0	6.0	0.737	-6.2	363.6	350.6	148.0	24.2W	
FEB 14	20 14 36.5	-20-33-23.5	1.14470	0.46267	22.824	0.0	5.9	0.759	-6.0	373.2	349.3	153.7	23.6W	
FEB 16	20 26 2.4	-20-10-50.5	1.17032	0.46511	21.531	-0.1	5.7	0.780	-5.8	382.8	348.1	159.4	23.0W	
FEB 18	20 37 44.0	-19-43-15.2	1.19445	0.46643	20.250	-0.1	5.6	0.800	-5.7	392.3	346.8	164.9	22.2W	
FEB 20	20 49 39.0	-19-10-34.3	1.21711	0.46664	18.979	-0.1	5.5	0.818	-5.6	401.7	345.5	170.5	21.4W	
FEB 22	21 1 45.4	-18-32-45.4	1.23830	0.46574	17.712	-0.1	5.4	0.835	-5.4	411.0	344.3	176.1	20.5W	
FEB 24	21 14 1.8	-17-49-46.9	1.25803	0.46371	16.442	-0.2	5.3	0.851	-5.3	420.3	343.0	181.7	19.5W	
FEB 26	21 26 27.0	-17 -1-38.0	1.27629	0.46059	15.160	-0.2	5.3	0.866	-5.1	429.5	341.8	187.4	18.5W	
FEB 28	21 39 0.1	-16 -8-18.6	1.29305	0.45638	13.853	-0.3	5.2	0.881	-5.0	438.6	340.6	193.1	17.4W	
MAR 2	21 51 40.7	-15 -9-48.9	1.30828	0.45110	12.507	-0.4	5.1	0.895	-4.9	447.7	339.5	199.0	16.2W	
MAR 4	22 4 28.4	-14 -6 -9.6	1.32192	0.44479	11.103	-0.4	5.1	0.909	-4.8	456.7	338.4	205.0	14.9W	
MAR 6	22 17 23.2	-12-57-21.9	1.33390	0.43748	9.620	-0.5	5.0	0.923	-4.7	465.6	337.4	211.3	13.6W	
MAR 8	22 30 25.1	-11-43-27.9	1.34411	0.42923	8.033	-0.6	5.0	0.936	-4.5	474.5	336.4	217.7	12.2W	
MAR 10	22 43 34.7	-10-24-30.2	1.35241	0.42010	6.311	-0.7	5.0	0.949	-4.4	483.2	335.5	224.4	10.8W	
MAR 12	22 56 52.3	-9 0-33.0	1.35863	0.41019	4.419	-0.9	5.0	0.961	-4.3	491.9	334.7	231.4	9.2W	
MAR 14	23 10 18.7	-7-31-42.2	1.36255	0.39961	2.317	-1.0	4.9	0.972	-4.2	500.6	333.9	238.8	7.6W	
MAR 16	23 23 54.3	-5-58 -6.6	1.36389	0.38849	-0.036	-1.2	4.9	0.982	-4.1	509.3	333.2	246.6	5.9W	
MAR 18	23 37 39.9	-4-19-58.5	1.36236	0.37702	-2.687	-1.4	4.9	0.991	-4.0	517.6	332.7	254.9	4.2W	
MAR 20	23 51 35.9	-2-37-35.6	1.35756	0.36541	-5.679	-1.6	5.0	0.997	-3.9	525.9	332.2	263.6	2.5W	
MAR 22	0 5 42.3	0-51-22.9	1.34910	0.35393	-9.046	-1.8	5.0	0.999	-3.8	534.3	331.8	273.0	1.4E	
MAR 24	0 19 58.5	0 58 4.8	1.33652	0.34291	-12.803	-1.8	5.0	0.997	-3.7	542.6	331.6	282.9	2.3E	
MAR 26	0 34 23.1	2 50 0.2	1.31939	0.33271	-16.929	-1.7	5.1	0.988	-3.6	550.8	331.4	293.5	4.2E	
MAR 28	0 48 53.2	4 43 21.2	1.29731	0.32373	-21.355	-1.6	5.2	0.971	-3.6	559.0	331.4	304.7	6.2E	
MAR 30	1 3 24.4	6 36 49.5	1.27001	0.31639	-25.946	-1.5	5.3	0.945	-3.5	567.2	331.5	316.5	8.3E	
APR 1	1 17 50.5	8 28 51.9	1.23740	0.31107	-30.502	-1.3	5.4	0.909	-3.4	575.4	331.7	328.8	10.3E	
APR 3	1 32 3.4	10 17 43.4	1.19966	0.30809	-34.772	-1.2	5.6	0.862	-3.4	583.7	332.1	341.4	12.3E	
APR 5	1 45 53.5	12 1 34.8	1.15729	0.30763	-38.490	-1.1	5.8	0.804	-3.3	592.0	332.2	354.1	14.1E	
APR 7	1 59 10.3	13 38 40.9	1.11106	0.30972	-41.428	-0.9	6.1	0.739	-3.3	600.3	333.0	366.8	15.8E	
APR 9	2 11 42.9	15 7 29.2	1.06195	0.31423	-43.433	-0.7	6.3	0.668	-3.3	608.6	333.6	379.5	17.2E	
APR 11	2 23 20.9	16 26 45.8	1.01110	0.32089	-44.450	-0.5	6.7	0.594	-3.2	616.9	334.3	392.2	18.3E	
APR 13	2 33 55.0	17 35 37.1	0.95964	0.32933	-44.510	-0.3	7.0	0.519	-3.2	625.2	334.9	404.9	19.2E	
APR 15	2 43 17.1	18 33 27.8	0.90861	0.33914	-43.704	0.0	7.4	0.447	-3.1	633.5	335.5	417.6	19.6E	
APR 17	2 51 20.1	19 19 57.2	0.85895	0.34991	-42.153	0.3	7.8	0.378	-3.0	641.8	336.0	430.3	19.8E	
APR 19	2 57 58.6	19 54 54.6	0.81146	0.36126	-39.977	0.6	8.3	0.313	-2.9	649.9	336.5	442.9	19.5E	
APR 21	3 3 8.5	20 18 15.3	0.76679	0.37286	-37.285	1.0	8.8	0.253	-2.8	658.0	336.9	455.5	18.8E	
APR 23	3 6 47.4	20 29 59.2	0.72548	0.38441	-34.164	1.4	9.3	0.198	-2.7	666.1	337.1	468.1	17.8E	
APR 25	3 8 54.9	20 30 10.9	0.68799	0.39567	-30.684	1.9	9.8	0.149	-2.5	674.2	337.3	480.7	16.3E	
APR 27	3 9 33.3	20 19 3.2	0.65470	0.40647	-26.903	2.4	10.3	0.106	-2.2	682.3	337.4	493.3	14.4E	
APR 29	3 8 48.3	19 57 2.8	0.62593	0.41664	-22.873	3.0	10.7	0.070	-2.0	690.4	337.3	505.9	12.2E	
MAY 1	3 6 49.1	19 24 57.3	0.60193	0.42605	-18.648	3.6	11.2	0.041	-1.7	698.5	337.2	518.5	9.6E	
MAY 3	3 3 49.0	18 44 1.9	0.58288	0.43463	-14.292	4.4	11.5	0.019	-1.3	706.6	336.9	531.1	6.8E	
MAY 5	3 0 4.3	17 56 3.6	0.56892	0.44228	-9.879	5.2	11.8	0.006	-0.9	714.7	336.7	543.7	3.7E	
MAY 7	2 55 54.2	17 3 19.6	0.56004	0.44896	-5.490	6.1	12.0	0.000	-0.5	722.8	336.4	556.3	0.6E	
MAY 9	2 51 38.5	16 8 29.7	0.55618	0.45461	-1.211	5.5	12.1	0.003	-0.1	730.9	336.1	568.9	2.7W	
MAY 11	2 47 36.4	15 14 22.6	0.55716	0.45921	2.881	4.7	12.1	0.013	0.3	739.0	335.8	581.5	5.9W	
MAY 13	2 44 5.0	14 23 39.8	0.56273	0.46272	6.723	4.0	12.0	0.030	0.8	747.1	335.6	594.1	8.9W	
MAY 15	2 41 18.0	13 38 41.3	0.57257	0.46514	10.269	3.4	11.8	0.052	1.2	755.2	335.4	606.7	11.8W	
MAY 17	2 39 25.6	13 1 15.5	0.58632	0.46645	13.500	2.9	11.5	0.078	1.5	763.3	335.2	619.3	14.4W	
MAY 19	2 38 34.3	12 32 35.5	0.60362	0.46664	16.411	2.5	11.1	0.108	1.9	771.4	335.2	631.9	16.7W	
MAY 21	2 38 47.4	12 13 20.3	0.62411	0.46571	19.018	2.1	10.8	0.141	2.2	779.5	335.2	644.5	18.7W	
MAY 23	2 40 6.0	12 3 39.8	0.64744	0.46368	21.346	1.8	10.4	0.175	2.5	787.6	335.3	657.1	20.3W	
MAY 25	2 42 29.2	12 3 22.0	0.67332	0.46053	23.426	1.5	10.0	0.210	2.7	795.7	335.4	669.7	21.7W	
MAY 27	2 45 55.4	12 11 59.4	0.70147	0.45631	25.288	1.3	9.6	0.245	2.9	803.8	335.6	682.3	22.8W	
MAY 29	2 50 22.3	12 28 54.4	0.73166	0.45101	26.961	1.1	9.2	0.281	3.1	811.9	335.9	694.9	23.6W	
MAY 31	2 55 47.7	12 53 23.3	0.76369	0.44468	28.468	0.9	8.8	0.318	3.3	820.0	336.3	707.5	24.1W	
JUN 2	3 2 9.4	13 24 39.6	0.79737	0.43736	29.824	0.7	8.4	0.356	3.4	828.1	336.8	720.1	24.4W	
JUN 4	3 9 25.7	14 1 55.0	0.83253	0.42909	31.036	0.6	8.1	0.394	3.5	836.2	337.3	732.7	24.4W	
JUN 6	3 17 35.4	14 44 20.7	0.86901	0.41996	32.104	0.4	7.7	0.433	3.6	844.3	338.0	745.3	24.2W	
JUN 8	3 26 37.9	15 31 7.2	0.90663	0.41003	33.015	0.3	7.4	0.473	3.7	852.4	338.7	757.9	23.8W	

2003 MERCURY

Geocentric Planetary Ephemeris

2003 MERCURY

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	6 24 17.9	24 13 27.9	1.31203	0.30764	12.470	-1.8	5.1	0.985	4.2	346.1	357.6	356.9	4.3W	
JUL 4	6 43 25.2	24 14 38.9	1.32357	0.30977	7.502	-2.0	5.1	0.996	4.3	354.0	359.9	9.6	2.1W	
JUL 6	7 2 29.1	24 4 38.3	1.32942	0.31432	2.640	-2.1	5.1	0.998	4.4	1.9	2.2	22.0	1.6E	
JUL 8	7 21 17.0	23 43 43.2	1.32981	0.32101	-1.899	-1.8	5.1	0.991	4.5	9.9	4.4	34.0	3.5E	
JUL 10	7 39 38.5	23 12 34.6	1.32522	0.32947	-5.970	-1.6	5.1	0.976	4.6	17.9	6.6	45.4	5.7E	
JUL 12	7 57 25.5	22 32 10.4	1.31624	0.33930	-9.501	-1.3	5.1	0.956	4.7	26.0	8.7	56.2	7.9E	
JUL 14	8 14 32.9	21 43 37.0	1.30349	0.35009	-12.483	-1.1	5.2	0.932	4.9	34.2	10.6	66.4	10.0E	
JUL 16	8 30 57.6	20 48 3.6	1.28760	0.36144	-14.953	-0.9	5.2	0.906	5.0	42.6	12.5	75.9	12.0E	
JUL 18	8 46 38.2	19 46 37.3	1.26913	0.37304	-16.971	-0.8	5.3	0.879	5.1	51.0	14.2	84.9	13.9E	
JUL 20	9 1 34.8	18 40 20.8	1.24855	0.38458	-18.604	-0.6	5.4	0.851	5.3	59.6	15.7	93.3	15.6E	
JUL 22	9 15 48.2	17 30 11.1	1.22628	0.39585	-19.920	-0.5	5.5	0.823	5.5	68.3	17.2	101.3	17.3E	
JUL 24	9 29 19.7	16 16 60.0	1.20264	0.40663	-20.981	-0.4	5.6	0.796	5.6	77.1	18.5	108.8	18.8E	
JUL 26	9 42 11.0	15 1 33.4	1.17789	0.41679	-21.839	-0.2	5.7	0.770	5.8	86.0	19.7	115.9	20.2E	
JUL 28	9 54 23.4	13 44 33.1	1.15225	0.42619	-22.539	-0.2	5.8	0.743	6.0	95.1	20.8	122.8	21.5E	
JUL 30	10 5 58.4	12 26 36.5	1.12587	0.43475	-23.117	-0.1	6.0	0.717	6.2	104.2	21.8	129.3	22.7E	
AUG 1	10 16 57.1	11 8 18.5	1.09888	0.44239	-23.600	0.0	6.1	0.692	6.4	113.5	22.7	135.6	23.7E	
AUG 3	10 27 20.4	9 50 11.3	1.07138	0.44905	-24.007	0.1	6.3	0.666	6.6	122.9	23.5	141.7	24.7E	
AUG 5	10 37 8.8	8 32 46.0	1.04344	0.45469	-24.353	0.1	6.4	0.640	6.8	132.4	24.2	147.7	25.5E	
AUG 7	10 46 22.3	7 16 33.3	1.01514	0.45927	-24.646	0.2	6.6	0.614	7.0	142.1	24.8	153.5	26.2E	
AUG 9	10 55 0.5	6 2 4.1	0.98653	0.46277	-24.888	0.3	6.8	0.587	7.2	151.9	25.4	159.2	26.7E	
AUG 11	11 3 2.4	4 49 50.4	0.95766	0.46517	-25.077	0.3	7.0	0.560	7.4	161.8	25.8	164.8	27.1E	
AUG 13	11 10 26.5	3 40 26.3	0.92862	0.46646	-25.207	0.4	7.2	0.531	7.7	171.9	26.3	170.4	27.4E	
AUG 15	11 17 10.6	2 34 29.0	0.89946	0.46663	-25.263	0.4	7.5	0.500	7.9	182.2	26.6	176.0	27.4E	
AUG 17	11 23 11.8	1 32 39.9	0.87029	0.46569	-25.224	0.5	7.7	0.469	8.1	192.6	26.9	181.6	27.3E	
AUG 19	11 28 26.3	0 35 46.2	0.84123	0.46363	-25.061	0.6	8.0	0.435	8.4	203.3	27.2	187.2	27.0E	
AUG 21	11 32 49.6	0 15 18.0	0.81246	0.46048	-24.733	0.6	8.3	0.399	8.6	214.2	27.4	192.9	26.5E	
AUG 23	11 36 16.5	0 59 30.4	0.78418	0.45623	-24.186	0.8	8.6	0.360	8.9	225.3	27.6	198.6	25.7E	
AUG 25	11 38 40.9	-1 35 39.1	0.75669	0.45092	-23.354	0.9	8.9	0.320	9.1	236.8	27.7	204.5	24.6E	
AUG 27	11 39 56.4	-2 2 23.5	0.73037	0.44457	-22.152	1.1	9.2	0.277	9.4	248.6	27.7	210.6	23.2E	
AUG 29	11 39 56.9	-2 18 15.4	0.70569	0.43724	-20.480	1.3	9.5	0.232	9.6	260.7	27.8	216.8	21.4E	
AUG 31	11 38 37.3	-2 21 44.1	0.68328	0.42896	-18.221	1.6	9.8	0.186	9.8	273.3	27.7	223.3	19.3E	
SEP 2	11 35 55.1	-2 11 26.9	0.66386	0.41981	-15.253	2.0	10.1	0.140	10.0	286.2	27.6	230.0	16.8E	
SEP 4	11 31 52.1	-1 46 24.9	0.64835	0.40987	-11.463	2.5	10.4	0.096	10.1	299.6	27.5	237.1	13.9E	
SEP 6	11 26 36.8	-1 6 26.6	0.63772	0.39927	-6.773	3.2	10.5	0.058	10.1	313.4	27.3	244.5	10.7E	
SEP 8	11 20 25.8	0 12 33.9	0.63304	0.38814	-1.172	4.0	10.6	0.028	10.0	327.5	27.0	252.3	7.3E	
SEP 10	11 13 45.0	0 52 37.5	0.63531	0.37666	5.251	4.7	10.6	0.010	9.8	341.8	26.6	260.5	4.3E	
SEP 12	11 7 8.0	2 4 55.3	0.64538	0.36505	12.291	4.8	10.4	0.008	9.4	356.1	26.2	269.3	3.8W	
SEP 14	11 1 12.7	3 18 53.7	0.66380	0.35358	19.631	4.0	10.1	0.024	9.0	10.3	25.8	278.7	6.2W	
SEP 16	10 56 36.0	4 28 39.4	0.69068	0.34258	26.883	3.0	9.7	0.060	8.4	24.1	25.5	288.7	9.3W	
SEP 18	10 53 48.6	5 28 44.2	0.72569	0.33241	33.632	2.1	9.3	0.113	7.8	37.5	25.3	299.3	12.1W	
SEP 20	10 53 11.1	6 14 47.1	0.76801	0.32348	39.488	1.3	8.8	0.184	7.2	50.2	25.2	310.5	14.4W	
SEP 22	10 54 53.0	6 43 54.8	0.81643	0.31619	44.126	0.7	8.2	0.266	6.6	62.3	25.3	322.3	16.2W	
SEP 24	10 58 52.5	6 54 42.9	0.86938	0.31094	47.311	0.2	7.7	0.357	6.0	73.8	25.5	334.6	17.3W	
SEP 26	11 4 59.2	6 47 6.0	0.92512	0.30804	48.932	-0.2	7.3	0.452	5.5	84.6	25.8	347.2	17.8W	
SEP 28	11 12 56.2	6 22 2.2	0.98183	0.30766	49.017	-0.5	6.9	0.545	5.0	94.9	26.3	360.0	17.8W	
SEP 30	11 22 23.6	5 41 16.5	1.03783	0.30983	47.727	-0.7	6.5	0.632	4.5	104.8	26.7	12.6	17.4W	
OCT 2	11 33 0.8	4 47 3.5	1.09167	0.31441	45.330	-0.8	6.2	0.710	4.1	114.3	27.2	25.0	16.6W	
OCT 4	11 44 28.8	3 41 50.3	1.14225	0.32113	42.142	-0.9	5.9	0.777	3.8	123.5	27.6	37.0	15.5W	
OCT 6	11 56 31.2	2 28 2.6	1.18885	0.32962	38.474	-1.0	5.7	0.833	3.5	132.5	27.9	48.4	14.2W	
OCT 8	12 8 55.1	1 7 54.4	1.23106	0.33946	34.588	-1.0	5.5	0.878	3.2	141.4	28.2	59.2	12.8W	
OCT 10	12 21 31.1	0 16 37.7	1.26876	0.35026	30.682	-1.1	5.3	0.913	2.9	150.3	28.4	69.4	11.4W	
OCT 12	12 34 12.3	-1 43 56.3	1.30200	0.36162	26.889	-1.1	5.2	0.941	2.7	159.1	28.6	78.9	9.9W	
OCT 14	12 46 54.5	-3 12 42.2	1.33096	0.37322	23.284	-1.1	5.1	0.961	2.5	167.8	28.6	87.9	8.4W	
OCT 16	12 59 35.0	-4 41 52.4	1.35588	0.38476	19.903	-1.2	5.0	0.976	2.3	176.6	28.5	96.3	6.9W	
OCT 18	13 12 12.3	-6 10 37.0	1.37704	0.39602	16.756	-1.2	4.9	0.986	2.1	185.4	28.3	104.3	5.4W	
OCT 20	13 24 46.1	-7 38 17.0	1.39469	0.40680	13.832	-1.2	4.8	0.993	1.9	194.3	28.1	111.8	3.9W	
OCT 22	13 37 16.5	-9 4 21.5	1.40908	0.41694	11.112	-1.3	4.8	0.997	1.7	203.1	27.7	118.9	2.5W	
OCT 24	13 49 43.8	-10 28 25.7	1.42044	0.42633	8.574	-1.3	4.7	0.999	1.5	212.0	27.3	125.7	1.2W	
OCT 26	14 2 9.0	-11 50 9.8	1.42896	0.43488	6.194	-1.3	4.7	1.000	1.4	221.0	26.8	132.3	0.7E	
OCT 28	14 14 32.7	-13 9 17.2	1.43480	0.44250	3.947	-1.2	4.7	0.999	1.2	230.0	26.2	138.6	1.7E	
OCT 30	14 26 55.9	-14 25 33.6	1.43812	0.44915	1.811	-1.1	4.7	0.997	1.0	239.0	25.5	144.7	2.9E	
NOV 1	14 39 19.5	-15 38 46.6	1.43903	0.45477	-0.234	-1.0	4.7	0.994	0.9	248.0	24.8	150.6	4.2E	
NOV 3	14 51 44.2	-16 48 44.8	1.43761	0.45933	-2.210	-0.9	4.7	0.990	0.7	257.1	23.9	156.4	5.4E	
NOV 5	15 4 10.9	-17 55 17.7	1.43395	0.46281	-4.136	-0.8	4.7	0.985	0.5	266.2	23.0	162.1	6.5E	
NOV 7	15 16 40.2	-18 58 15.2	1.42808	0.46520	-6.028	-0.7	4.7	0.979	0.4	275.4	22.1	167.8	7.7E	
NOV 9	15 29 12.7	-19 57 27.2	1.42004	0.46647	-7.903	-0.6	4.7	0.973	0.2	284.5	21.0	173.4	8.8E	
NOV 11	15 41 48.7	-20 52 43.6	1.40983	0.46662	-9.777	-0.6	4.8	0.965	0.0	293.7	20.0	179.0	9.9E	
NOV 13	15 54 28.3	-21 43 54.3	1.39745	0.46567	-11.663	-0.5	4.8	0.957	-0.2	302.9	18.8	184.5	11.0E	
NOV 15	16 7 11.5	-22 30 48.6	1.38288	0.46359	-13.576	-0.5	4.9	0.948	-0.3	312.2	17.6	190.2	12.0E	
NOV 17	16 19 57.9	-23 13 15.6	1.36608	0.46042	-15.526	-0.4	4.9	0.937	-0.5	321.4	16.3	195.9	13.0E	
NOV 19	16 32 46.6	-23 51 4.3	1.34700	0.45616	-17.527	-0.4	5.0	0.925	-0.7	330.7	15.0	201.6	14.0E	
NOV 21	16 45 36.7	-24 24 3.3	1.32557	0.45083	-19.588	-0.4	5.1	0.912	-0.9	340.0	13.7	207.5	15.0E	
NOV 23	16 58 26.3	-24 52 1.5	1.30172	0.44447	-21.717	-0.4	5.2	0.896	-1.1	349.3	12.3	213.6	15.9E	
NOV 25	17 11 13.3	-25 14 48.1	1.27538	0.43712	-23.918	-0.4	5.3	0.878	-1.3	358.7	10.9	219.8	16.8E	
NOV 27	17 23 54.4	-25 32 13.1	1.24645	0.42882	-26.192	-0.4	5.4	0.857	-1.5	8.1	9.4	226.3	17.7E	
NOV 29	17 36 25.6	-25 44 7.8	1.21485	0.41966	-28.531	-0.4	5.5	0.833	-1.7	17.6	8.0	233.0	18.5E	
DEC 1	17 48 41.5	-25 50 25.5	1.18052	0.40972	-30.919	-0.4	5.7	0.804	-2.0	27.1	6.6	240.1	19.2E	
DEC 3	18 0 35.3	-25 51 2.5	1.14342	0.39910	-33.327	-0.4	5.9	0.771	-2.3	36.7	5.2	247.5	19.9E	
DEC 5	18 11 58.1	-25 45 60.0	1.10355	0.38796	-35.702	-0.4	6.1	0.732	-2.5	46.4	3.8	255.3	20.4E	
DEC 7	18 22 38.6	-25 35 24.9	1.06099	0.37648	-37.961	-0.4	6.3	0.686	-2.9	56.3	2.6	263.6	20.8E	
DEC 9	18 32 22.2	-25 19 32.6	1.01595	0.36487	-39.975	-0.4	6.6	0.632	-3.2	66.4	1.4			

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Geocentric Planetary Ephemeris

2004 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
	(h m s)	(d ' ")	(d ' ")												
JAN 2	17 51 21.0	-20-14-34.3	0.71732	0.32976	24.481	1.7	9.4	0.137	-7.6	223.6	6.3	51.6	13.3W		
JAN 4	17 46 20.7	-20-14-4.9	0.74880	0.33962	29.687	1.1	9.0	0.214	-7.5	237.0	6.9	62.4	16.5W		
JAN 6	17 44 12.8	-20-20-46.1	0.78516	0.35043	32.989	0.6	8.6	0.293	-7.3	249.8	7.1	72.5	18.9W		
JAN 8	17 44 42.5	-20-33-9.1	0.82440	0.36180	34.744	0.3	8.2	0.369	-7.1	261.9	7.1	82.1	20.8W		
JAN 10	17 47 28.6	-20-49-28.8	0.86497	0.37340	35.333	0.1	7.8	0.439	-6.9	273.5	6.8	91.0	22.1W		
JAN 12	17 52 8.7	-21-8-2.6	0.90571	0.38494	35.088	0.0	7.4	0.501	-6.8	284.7	6.2	99.5	23.0W		
JAN 14	17 58 22.5	-21-27-19.2	0.94581	0.39618	34.270	-0.1	7.1	0.556	-6.6	295.4	5.5	107.4	23.6W		
JAN 16	18 5 52.9	-21-46-2.2	0.98474	0.40695	33.075	-0.1	6.8	0.605	-6.4	305.9	4.6	114.9	23.9W		
JAN 18	18 14 25.5	-22-3-9.8	1.02213	0.41709	31.642	-0.1	6.6	0.647	-6.3	316.2	3.6	122.1	23.9W		
JAN 20	18 23 49.1	-22-17-52.6	1.05779	0.42647	30.071	-0.1	6.4	0.684	-6.2	326.3	2.4	128.9	23.8W		
JAN 22	18 33 54.3	-22-29-31.9	1.09158	0.43500	28.429	-0.1	6.2	0.717	-6.0	336.2	1.2	135.4	23.5W		
JAN 24	18 44 33.7	-22-37-37.1	1.12346	0.44261	26.762	-0.1	6.0	0.746	-5.9	346.0	359.9	141.7	23.1W		
JAN 26	18 55 41.4	-22-41-43.8	1.15341	0.44924	25.098	-0.1	5.8	0.772	-5.8	355.7	358.6	147.8	22.5W		
JAN 28	19 7 12.5	-22-41-33.0	1.18146	0.45484	23.455	-0.1	5.7	0.795	-5.7	5.3	357.2	153.8	21.9W		
JAN 30	19 19 3.3	-22-36-49.7	1.20762	0.45939	21.841	-0.1	5.6	0.815	-5.6	14.9	355.8	159.6	21.2W		
FEB 1	19 31 10.4	-22-27-21.9	1.23193	0.46285	20.259	-0.2	5.5	0.834	-5.6	24.3	354.4	165.3	20.5W		
FEB 3	19 43 31.4	-22-12-59.7	1.25443	0.46522	18.708	-0.2	5.4	0.851	-5.5	33.7	352.9	170.9	19.7W		
FEB 5	19 56 3.9	-21-53-35.5	1.27516	0.46648	17.184	-0.2	5.3	0.866	-5.4	43.1	351.5	176.5	18.8W		
FEB 7	20 8 46.2	-21-29-2.9	1.29414	0.46662	15.680	-0.2	5.2	0.881	-5.3	52.3	350.0	182.1	17.9W		
FEB 9	20 21 36.9	-20-59-16.6	1.31139	0.46564	14.186	-0.3	5.1	0.894	-5.3	61.6	348.6	187.7	16.9W		
FEB 11	20 34 34.7	-20-24-12.4	1.32692	0.46355	12.691	-0.3	5.1	0.907	-5.2	70.7	347.1	193.3	15.8W		
FEB 13	20 47 38.6	-19-43-46.7	1.34071	0.46036	11.182	-0.4	5.0	0.919	-5.1	79.9	345.7	199.0	14.7W		
FEB 15	21 0 48.1	-18-57-57.0	1.35274	0.45608	9.643	-0.4	5.0	0.931	-5.1	88.9	344.4	204.8	13.6W		
FEB 17	21 14 2.4	-18-6-41.2	1.36297	0.45074	8.058	-0.5	4.9	0.941	-5.0	97.9	343.0	210.7	12.4W		
FEB 19	21 27 21.2	-17-9-58.0	1.37134	0.44436	6.407	-0.6	4.9	0.952	-4.9	106.9	341.7	216.8	11.1W		
FEB 21	21 40 44.4	-16-7-46.8	1.37775	0.43700	4.669	-0.7	4.9	0.962	-4.9	115.8	340.5	223.0	9.8W		
FEB 23	21 54 11.7	-15-0-7.6	1.38209	0.42869	2.817	-0.8	4.9	0.971	-4.8	124.6	339.3	229.5	8.4W		
FEB 25	22 7 43.4	-13-47-1.6	1.38421	0.41951	0.823	-1.0	4.9	0.979	-4.8	133.4	338.1	236.2	7.0W		
FEB 27	22 21 19.4	-12-28-31.2	1.38392	0.40956	-1.347	-1.1	4.9	0.986	-4.7	142.1	337.1	243.3	5.5W		
FEB 29	22 34 60.0	-11-4-41.0	1.38102	0.39894	-3.729	-1.3	4.9	0.992	-4.7	150.7	336.1	250.7	4.0W		
MAR 2	22 48 45.2	-9-35-38.4	1.37522	0.38779	-6.361	-1.5	4.9	0.997	-4.6	159.3	335.2	258.5	2.6W		
MAR 4	23 2 35.0	-8-1-34.8	1.36622	0.37630	-9.281	-1.6	4.9	0.998	-4.6	167.8	334.3	266.8	1.7E		
MAR 6	23 16 28.8	-6-22-47.5	1.35367	0.36470	-12.519	-1.7	5.0	0.997	-4.6	176.3	333.6	275.7	2.3E		
MAR 8	23 30 25.8	-4-39-41.4	1.33718	0.35324	-16.093	-1.6	5.0	0.991	-4.5	184.7	332.9	285.1	3.9E		
MAR 10	23 44 24.1	-2-52-52.3	1.31637	0.34226	-19.997	-1.5	5.1	0.979	-4.5	193.0	332.4	295.1	5.6E		
MAR 12	23 58 20.9	-1-3-9.2	1.29088	0.33212	-24.184	-1.4	5.2	0.960	-4.5	201.3	332.0	305.7	7.5E		
MAR 14	0 12 11.7	0 48 22.5	1.26044	0.32323	-28.554	-1.4	5.3	0.932	-4.5	209.7	331.7	317.0	9.4E		
MAR 16	0 25 50.3	2 40 19.1	1.22492	0.31600	-32.942	-1.3	5.5	0.894	-4.5	218.1	331.5	328.8	11.3E		
MAR 18	0 39 8.5	4 30 58.9	1.18443	0.31082	-37.119	-1.2	5.7	0.845	-4.6	226.5	331.4	341.1	13.0E		
MAR 20	0 51 56.3	6 18 26.2	1.13937	0.30799	-40.818	-1.0	5.9	0.786	-4.6	235.1	331.4	353.7	14.7E		
MAR 22	1 4 2.1	8 0 37.2	1.09043	0.30769	-43.772	-0.9	6.2	0.717	-4.7	244.0	331.5	6.5	16.2E		
MAR 24	1 15 13.7	9 35 28.9	1.03862	0.30994	-45.765	-0.7	6.5	0.640	-4.7	253.0	331.6	19.2	17.4E		
MAR 26	1 25 18.9	11 1 7.8	0.98513	0.31459	-46.675	-0.5	6.8	0.560	-4.8	262.5	331.8	31.6	18.2E		
MAR 28	1 34 6.7	12 15 55.4	0.93122	0.32137	-46.478	-0.2	7.2	0.478	-4.9	272.2	332.1	43.5	18.8E		
MAR 30	1 41 27.2	13 18 31.0	0.87816	0.32990	-45.235	0.1	7.7	0.399	-5.0	282.4	332.3	54.9	18.9E		
APR 1	1 47 12.8	14 7 50.7	0.82708	0.33978	-43.061	0.5	8.1	0.323	-5.1	293.1	332.5	65.7	18.5E		
APR 3	1 51 18.5	14 43 5.5	0.77898	0.35060	-40.093	0.9	8.6	0.253	-5.1	304.2	332.7	75.9	17.8E		
APR 5	1 53 42.0	15 3 41.2	0.73470	0.36198	-36.466	1.4	9.2	0.190	-5.2	315.8	332.7	85.4	16.5E		
APR 7	1 54 24.9	15 9 20.2	0.69493	0.37357	-32.306	1.9	9.7	0.135	-5.2	327.9	332.8	94.4	14.8E		
APR 9	1 53 32.9	15 0 7.8	0.66021	0.38511	-27.733	2.6	10.2	0.088	-5.1	340.4	332.7	102.8	12.6E		
APR 11	1 51 16.8	14 36 40.9	0.63096	0.39635	-22.863	3.3	10.7	0.051	-5.0	353.4	332.7	110.7	10.0E		
APR 13	1 47 52.0	14 0 17.2	0.60745	0.40711	-17.815	4.1	11.1	0.024	-4.9	6.7	332.5	118.2	7.2E		
APR 15	1 43 38.1	13 13 0.7	0.58981	0.41724	-12.716	5.0	11.4	0.008	-4.7	20.2	332.4	125.4	4.1E		
APR 17	1 38 57.9	12 17 40.8	0.57803	0.42660	-7.693	5.7	11.6	0.001	-4.4	34.0	332.2	132.2	1.9W		
APR 19	1 34 14.5	11 17 40.4	0.57194	0.43512	-2.870	5.2	11.8	0.005	-4.0	47.7	332.1	138.7	3.6W		
APR 21	1 29 50.0	10 16 36.0	0.57127	0.44272	1.649	4.4	11.8	0.018	-3.6	61.4	332.0	145.0	6.7W		
APR 23	1 26 2.9	9 17 54.7	0.57559	0.44933	5.785	3.7	11.7	0.038	-3.2	75.0	331.9	151.1	9.8W		
APR 25	1 23 7.5	8 24 34.5	0.58445	0.45492	9.494	3.1	11.5	0.064	-2.8	88.3	331.9	157.1	12.8W		
APR 27	1 21 13.2	7 38 51.7	0.59735	0.45945	12.766	2.6	11.3	0.094	-2.3	101.4	331.8	162.9	15.5W		
APR 29	1 20 25.2	7 2 18.0	0.61377	0.46290	15.616	2.2	11.0	0.128	-1.9	114.1	331.8	168.6	17.9W		
MAY 1	1 20 45.3	6 35 43.8	0.63326	0.46525	18.077	1.9	10.6	0.162	-1.4	126.5	331.8	174.2	19.9W		
MAY 3	1 22 12.4	6 19 26.3	0.65540	0.46649	20.193	1.6	10.3	0.198	-1.0	138.6	331.9	179.9	21.6W		
MAY 5	1 24 44.0	6 13 18.1	0.67979	0.46661	22.012	1.4	9.9	0.234	-0.6	150.4	331.9	185.4	23.1W		
MAY 7	1 28 16.8	6 16 55.1	0.70615	0.46562	23.578	1.2	9.5	0.270	-0.3	161.9	332.0	191.0	24.2W		
MAY 9	1 32 46.8	6 29 42.9	0.73418	0.46351	24.930	1.0	9.2	0.305	0.0	173.0	332.1	196.7	25.0W		
MAY 11	1 38 10.4	6 51 1.5	0.76367	0.46030	26.106	0.8	8.8	0.340	0.4	184.0	332.3	202.4	25.6W		
MAY 13	1 44 23.9	7 20 8.8	0.79443	0.45601	27.132	0.7	8.5	0.374	0.6	194.7	332.5	208.2	25.9W		
MAY 15	1 51 24.6	7 56 22.2	0.82630	0.45065	28.031	0.6	8.1	0.409	0.9	205.1	332.8	214.1	26.0W		
MAY 17	1 59 9.9	8 39 0.3	0.85914	0.44426	28.817	0.5	7.8	0.443	1.1	215.4	333.1	220.1	25.9W		
MAY 19	2 7 38.1	9 27 23.0	0.89282	0.43688	29.494	0.4	7.5	0.477	1.4	225.4	333.5	226.4	25.6W		
MAY 21	2 16 48.1	10 20 51.2	0.92723	0.42855	30.060	0.3	7.3	0.512	1.6	235.3	333.9	232.9	25.0W		
MAY 23	2 26 39.3	11 18 46.6	0.96222	0.41937	30.504	0.1	7.0	0.547	1.8	244.9	334.5	239.6	24.4W		
MAY 25	2 37 12.0	12 20 31.0	0.99764	0.40940	30.802	0.0	6.7	0.584	1.9	254.4	335.1	246.7	23.5W		
MAY 27	2 48 26.7	13 25 24.8	1.03331	0.39877	30.922	-0.1	6.5	0.621	2.1	263.8	335.8	254.1	22.4W		
MAY 29	3 0 24.6	14 32 46.6	1.06899	0.38762	30.819	-0.2	6.3	0.660	2.2	272.9	336.7	262.0	21.2W		
MAY 31	3 13 7.2	15 41 52.0	1.10440	0.37612	30.432	0.4	6.1	0.701	2.3	281.9	337.6	270.3	19.9W		
JUN 2	3 26 36.3	16 51 47.4	1.13916	0.36452	29.691	-0.5	5.9	0.742	2.5	290.8	338.7	279.1	18.3W		
JUN 4	3 40 53.8	18 1 38.4	1.17282	0.35306	28.510	-0.7	5.7	0.784	2.6	299.4	339.9	288.5	16.6W		
JUN 6	3 56 0.8	19 10 17.3	1.20483	0.34209	26.801	-0.8	5.6	0.827	2.7	308.0	341.3	298.5	14.8W		
JUN 8	4 11 58.0	20 16 27.7	1.23451	0.33197	24.481	-1.0	5.4	0.868	2.8	316.3	342.9	30			

2004 MERCURY

Geocentric Planetary Ephemeris

2004 MERCURY

Date (0 DT)	RA [Mean] (h m s)			Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	7	49	57.2	22 57 53.4	1.23447	0.36215	-21.387	-0.7	5.4	0.847	4.5	53.1	7.8	88.9	14.8E
JUL 4	8	5	40.5	22 11 25.6	1.20885	0.37375	-22.909	-0.6	5.6	0.814	4.8	61.7	9.6	97.8	16.6E
JUL 6	8	20	36.7	21 19 12.6	1.18170	0.38529	-24.051	-0.4	5.7	0.781	5.0	70.4	11.3	106.2	18.3E
JUL 8	8	34	45.9	20 22 13.5	1.15341	0.39653	-24.887	-0.3	5.8	0.748	5.2	79.2	12.9	114.2	19.8E
JUL 10	8	48	8.8	19 21 23.2	1.12430	0.40728	-25.479	-0.2	6.0	0.716	5.5	88.2	14.3	121.7	21.2E
JUL 12	9	0	46.3	18 17 32.5	1.09462	0.41739	-25.880	-0.1	6.1	0.685	5.7	97.3	15.7	128.8	22.4E
JUL 14	9	12	39.1	17 11 28.1	1.06457	0.42675	-26.131	0.0	6.3	0.655	6.0	106.5	16.9	135.6	23.5E
JUL 16	9	23	48.1	16 3 53.8	1.03430	0.43525	-26.264	0.1	6.5	0.626	6.3	115.9	18.0	142.2	24.5E
JUL 18	9	34	13.7	14 55 30.8	1.00393	0.44283	-26.303	0.2	6.7	0.596	6.5	125.4	19.0	148.5	25.3E
JUL 20	9	43	56.1	13 46 59.1	0.97357	0.44943	-26.262	0.2	6.9	0.567	6.8	135.1	19.9	154.6	26.0E
JUL 22	9	52	54.9	12 38 57.6	0.94329	0.45500	-26.149	0.3	7.1	0.538	7.1	144.9	20.7	160.5	26.5E
JUL 24	10	1	9.3	11 32 5.6	0.91318	0.45951	-25.967	0.4	7.4	0.508	7.5	154.9	21.4	166.3	26.9E
JUL 26	10	8	38.1	10 27 3.7	0.88333	0.46295	-25.708	0.5	7.6	0.477	7.8	165.0	22.1	172.1	27.1E
JUL 28	10	15	19.3	9 24 34.5	0.85383	0.46528	-25.360	0.5	7.9	0.446	8.1	175.3	22.6	177.7	27.1E
JUL 30	10	21	10.4	8 25 23.9	0.82479	0.46650	-24.905	0.6	8.2	0.414	8.5	185.9	23.1	183.3	26.9E
AUG 1	10	26	8.4	7 30 21.7	0.79634	0.46660	-24.315	0.7	8.4	0.380	8.8	196.7	23.5	188.9	26.5E
AUG 3	10	30	9.4	6 40 22.6	0.76868	0.46559	-23.557	0.9	8.8	0.345	9.2	207.7	23.8	194.5	25.9E
AUG 5	10	33	9.3	5 56 26.5	0.74200	0.46347	-22.587	1.0	9.1	0.308	9.6	219.0	24.1	200.1	25.0E
AUG 7	10	35	3.5	5 19 39.4	0.71659	0.46024	-21.351	1.2	9.4	0.270	9.9	230.5	24.2	205.9	23.8E
AUG 9	10	35	47.8	4 51 11.8	0.69280	0.45593	-19.781	1.4	9.7	0.231	10.3	242.5	24.3	211.7	22.3E
AUG 11	10	35	18.3	4 32 17.0	0.67105	0.45056	-17.803	1.6	10.0	0.191	10.6	254.7	24.3	217.6	20.5E
AUG 13	10	33	32.7	4 24 5.2	0.65185	0.44415	-15.336	2.0	10.3	0.151	10.9	267.3	24.2	223.6	18.3E
AUG 15	10	30	31.7	4 27 35.9	0.63583	0.43675	-12.302	2.4	10.6	0.112	11.2	280.3	24.0	229.9	15.8E
AUG 17	10	26	19.7	4 43 25.1	0.62367	0.42842	-8.633	2.9	10.8	0.077	11.4	293.7	23.7	236.4	13.0E
AUG 19	10	21	7.0	5 11 31.3	0.61613	0.41922	-4.295	3.5	10.9	0.046	11.4	307.4	23.3	243.2	10.0E
AUG 21	10	15	10.3	5 51 0.5	0.61399	0.40924	0.703	4.2	11.0	0.024	11.4	321.3	22.8	250.2	7.0E
AUG 23	10	8	52.9	6 39 57.7	0.61797	0.39860	6.286	4.7	10.9	0.011	11.3	335.4	22.3	257.7	4.7W
AUG 25	10	2	43.6	7 35 28.2	0.62866	0.38744	12.312	4.7	10.7	0.011	11.0	349.5	21.8	265.5	4.6W
AUG 27	9	57	13.9	8 33 52.3	0.64649	0.37594	18.582	4.0	10.4	0.025	10.6	3.4	21.3	273.8	6.7W
AUG 29	9	52	54.3	9 31 10.0	0.67157	0.36433	24.851	3.2	10.0	0.054	10.1	17.0	20.9	282.7	9.4W
AUG 31	9	50	11.4	10 23 28.7	0.70378	0.35289	30.858	2.4	9.6	0.098	9.5	30.3	20.6	292.1	12.0W
SEP 2	9	49	24.8	11 7 24.3	0.74264	0.34193	36.342	1.6	9.1	0.156	8.9	43.0	20.5	302.1	14.2W
SEP 4	9	50	46.2	11 40 13.6	0.78742	0.33182	41.058	1.0	8.5	0.226	8.2	55.1	20.6	312.8	16.0W
SEP 6	9	54	18.9	11 59 57.8	0.83710	0.32298	44.780	0.5	8.0	0.305	7.6	66.7	20.8	324.1	17.2W
SEP 8	9	59	59.0	12 5 20.9	0.89041	0.31581	47.318	0.1	7.6	0.391	7.0	77.7	21.3	335.9	17.8W
SEP 10	10	7	36.4	11 55 48.4	0.94590	0.31070	48.544	-0.3	7.1	0.481	6.5	88.2	21.9	348.2	18.0W
SEP 12	10	16	56.0	11 31 25.0	1.00203	0.30794	48.416	-0.5	6.7	0.570	6.0	98.2	22.6	0.9	17.6W
SEP 14	10	27	39.9	10 52 53.1	1.05726	0.30772	47.007	-0.7	6.4	0.654	5.6	107.8	23.4	13.6	16.9W
SEP 16	10	39	29.0	10 1 27.4	1.11021	0.31004	44.501	-0.9	6.1	0.731	5.2	117.0	24.3	26.3	15.9W
SEP 18	10	52	4.6	8 58 47.6	1.15975	0.31477	41.164	-1.0	5.8	0.798	4.8	126.0	25.1	38.7	14.6W
SEP 20	11	5	10.2	7 46 46.9	1.20511	0.32161	37.293	-1.1	5.6	0.853	4.5	134.8	25.8	50.7	13.1W
SEP 22	11	18	32.3	6 27 21.4	1.24582	0.33019	33.164	-1.1	5.4	0.897	4.3	143.5	26.5	62.1	11.5W
SEP 24	11	32	0.5	5 2 21.3	1.28173	0.34011	29.001	-1.2	5.2	0.931	4.0	152.2	27.1	72.8	9.9W
SEP 26	11	45	27.3	3 33 24.4	1.31288	0.35095	24.961	-1.3	5.1	0.957	3.8	160.8	27.6	83.0	8.2W
SEP 28	11	58	48.0	2 1 54.1	1.33949	0.36234	21.139	-1.3	5.0	0.975	3.6	169.4	28.0	92.5	6.5W
SEP 30	12	11	59.9	0 28 59.5	1.36183	0.37394	17.581	-1.4	4.9	0.987	3.4	178.0	28.3	101.4	4.9W
OCT 2	12	25	1.5	-1 -4 -23.9	1.38022	0.38547	14.299	-1.4	4.9	0.994	3.2	186.7	28.5	109.8	3.3W
OCT 4	12	37	52.7	-2 -37 -31.4	1.39497	0.39670	11.283	-1.5	4.8	0.998	3.0	195.4	28.6	117.8	1.9W
OCT 6	12	50	33.8	-4 -9 -47.7	1.40639	0.40744	8.509	-1.5	4.8	0.999	2.9	204.2	28.6	125.3	1.2E
OCT 8	13	3	5.6	-5 -40 -44.5	1.41472	0.41754	5.951	-1.3	4.8	0.998	2.7	213.0	28.5	132.4	1.9E
OCT 10	13	15	29.1	-7 -9 -58.9	1.42021	0.42688	3.579	-1.2	4.7	0.996	2.6	221.8	28.3	139.2	3.2E
OCT 12	13	27	45.6	-8 -37 -12.4	1.42306	0.43538	1.362	-1.0	4.7	0.992	2.4	230.7	28.0	145.8	4.5E
OCT 14	13	39	56.4	-10 -2 -9.5	1.42341	0.44294	-0.727	-0.9	4.7	0.987	2.3	239.7	27.7	152.1	5.8E
OCT 16	13	52	2.5	-11 -24 -37.0	1.42142	0.44952	-2.713	-0.8	4.7	0.981	2.1	248.7	27.2	158.2	7.1E
OCT 18	14	4	5.1	-12 -44 -23.2	1.41719	0.45508	-4.616	-0.7	4.7	0.974	2.0	257.7	26.7	164.1	8.3E
OCT 20	14	16	5.2	-14 -1 -17.4	1.41079	0.45958	-6.458	-0.6	4.8	0.967	1.8	266.8	26.1	169.9	9.5E
OCT 22	14	28	3.8	-15 -15 -9.5	1.40229	0.46299	-8.256	-0.5	4.8	0.958	1.7	276.0	25.4	175.7	10.7E
OCT 24	14	40	1.6	-16 -25 -49.8	1.39173	0.46531	-10.027	-0.5	4.8	0.949	1.5	285.1	24.7	181.3	11.8E
OCT 26	14	51	59.1	-17 -33 -8.7	1.37913	0.46651	-11.786	-0.4	4.9	0.940	1.3	294.3	23.9	186.9	12.9E
OCT 28	15	3	56.8	-18 -36 -56.6	1.36450	0.46660	-13.547	-0.4	4.9	0.929	1.2	303.6	23.1	192.5	14.0E
OCT 30	15	15	54.8	-19 -37 -3.6	1.34784	0.46557	-15.323	-0.3	5.0	0.917	1.0	312.9	22.1	198.1	15.0E
NOV 1	15	27	53.0	-20 -33 -19.4	1.32910	0.46343	-17.124	-0.3	5.1	0.904	0.9	322.2	21.2	203.8	15.9E
NOV 3	15	39	50.8	-21 -25 -33.0	1.30827	0.46019	-18.961	-0.3	5.1	0.890	0.7	331.6	20.1	209.5	16.9E
NOV 5	15	51	47.3	-22 -13 -33.0	1.28529	0.45586	-20.841	-0.3	5.2	0.874	0.5	340.9	19.0	215.3	17.8E
NOV 7	16	3	40.9	-22 -57 -7.4	1.26011	0.45047	-22.769	-0.3	5.3	0.856	0.3	350.4	17.9	221.2	18.6E
NOV 9	16	15	29.7	-23 -36 -3.6	1.23267	0.44404	-24.747	-0.3	5.5	0.836	0.1	359.9	16.8	227.3	19.4E
NOV 11	16	27	10.5	-24 -10 -8.8	1.20292	0.43663	-26.772	-0.3	5.6	0.813	-0.1	9.4	15.6	233.5	20.1E
NOV 13	16	38	39.3	-24 -39 -10.0	1.17082	0.42828	-28.833	-0.3	5.7	0.787	-0.3	19.1	14.4	240.0	20.8E
NOV 15	16	49	50.8	-25 -2 -54.2	1.13631	0.41907	-30.911	-0.3	5.9	0.756	-0.5	28.8	13.2	246.8	21.3E
NOV 17	17	0	38.1	-25 -21 -8.8	1.09942	0.40908	-32.968	-0.3	6.1	0.722	-0.7	38.6	12.0	253.9	21.8E
NOV 19	17	10	51.8	-25 -33 -41.9	1.06019	0.39843	-34.949	-0.3	6.3	0.681	-1.0	48.6	10.9	261.3	22.1E
NOV 21	17	20	20.5	-25 -40 -22.6	1.01875	0.38726	-36.767	-0.2	6.6	0.634	-1.2	58.8	9.8	269.2	22.2E
NOV 23	17	28	49.1	-25 -41 -1.1	0.97536	0.37576	-38.293	-0.2	6.9	0.580	-1.5	69.1	8.9	277.5	22.1E
NOV 25	17	35	59.0	-25 -35 -29.4	0.93047	0.36416	-39.344	-0.1	7.2	0.518	-1.9	79.8	8.0	286.4	21.6E
NOV 27	17	41	27.7	-25 -23 -39.5	0.88475	0.35272	-39.663	0.0	7.6	0.447	-2.2	90.9	7.4	295.8	20.8E
NOV 29	17	44	48.9	-25 -5 -22.8	0.83925	0.34176	-38.915	0.2	8.0	0.368	-2.6	102.5	7.0	305.9	19.5E
DEC 1	17	45	34.9	-24 -40 -28.1	0.79542	0.33167	-36								

2005 MERCURY

Geocentric Planetary Ephemeris

2005 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JAN 2	17 14 59.6	-21-31-33.3	1.07834	0.40760	32.656	-0.3	6.2	0.706	-5.1	318.5	10.5	129.0	22.2W		
JAN 4	17 25 10.5	-21-58-43.0	1.11491	0.41769	30.651	-0.3	6.0	0.742	-5.1	328.4	9.3	136.2	21.8W		
JAN 6	17 35 57.9	-22-23-38.3	1.14915	0.42702	28.618	-0.3	5.9	0.773	-5.0	338.1	8.1	143.0	21.3W		
JAN 8	17 47 15.4	-22-45-38.3	1.18104	0.43550	26.594	-0.3	5.7	0.800	-5.0	347.7	6.8	149.5	20.7W		
JAN 10	17 58 58.0	-23 -4-11.0	1.21060	0.44305	24.605	-0.3	5.6	0.824	-5.0	357.3	5.4	155.8	20.1W		
JAN 12	18 11 1.7	-23-18-50.7	1.23790	0.44961	22.663	-0.3	5.4	0.845	-5.0	6.8	3.9	161.9	19.3W		
JAN 14	18 23 23.0	-23-29-16.7	1.26299	0.45516	20.775	-0.3	5.3	0.863	-5.0	16.2	2.5	167.9	18.6W		
JAN 16	18 35 59.4	-23-35-12.1	1.28592	0.45964	18.941	-0.3	5.2	0.879	-4.9	25.6	1.0	173.7	17.7W		
JAN 18	18 48 48.5	-23-36-23.2	1.30677	0.46303	17.157	-0.3	5.1	0.894	-4.9	34.9	359.4	179.4	16.8W		
JAN 20	19 1 48.5	-23-32-38.4	1.32558	0.46533	15.414	-0.3	5.1	0.908	-4.9	44.2	357.9	185.0	15.9W		
JAN 22	19 14 57.8	-23-23-48.2	1.34240	0.46652	13.705	-0.3	5.0	0.920	-4.9	53.4	356.3	190.7	14.9W		
JAN 24	19 28 15.0	-23 -9-44.3	1.35725	0.46659	12.019	-0.4	5.0	0.931	-4.9	62.6	354.7	196.3	13.9W		
JAN 26	19 41 39.0	-22-50-19.5	1.37017	0.46555	10.343	-0.4	4.9	0.941	-4.9	71.8	353.1	201.9	12.9W		
JAN 28	19 55 8.6	-22-25-27.7	1.38115	0.46339	8.665	-0.5	4.9	0.950	-4.9	80.9	351.6	207.5	11.8W		
JAN 30	20 8 43.1	-21-55 -3.5	1.39019	0.46013	6.968	-0.6	4.8	0.959	-4.9	90.0	350.0	213.2	10.7W		
FEB 1	20 22 21.6	-21-19 -2.1	1.39724	0.45578	5.238	-0.6	4.8	0.967	-4.9	99.0	348.5	219.0	9.5W		
FEB 3	20 36 3.6	-20-37-19.8	1.40227	0.45038	3.453	-0.7	4.8	0.974	-4.9	108.0	347.0	225.0	8.4W		
FEB 5	20 49 48.4	-19-49-53.3	1.40520	0.44394	1.595	-0.8	4.8	0.981	-4.9	117.0	345.5	231.0	7.1W		
FEB 7	21 3 35.8	-18-56-40.4	1.40592	0.43651	-0.359	-1.0	4.8	0.987	-4.9	125.9	344.1	237.3	5.9W		
FEB 9	21 17 25.1	-17-57-39.8	1.40433	0.42815	-2.436	-1.1	4.8	0.991	-4.9	134.7	342.7	243.8	4.6W		
FEB 11	21 31 16.0	-16-52-51.2	1.40025	0.41892	-4.660	-1.2	4.8	0.995	-4.9	143.5	341.4	250.6	3.4W		
FEB 13	21 45 8.1	-15-42-16.2	1.39350	0.40892	-7.063	-1.4	4.8	0.998	-4.9	152.2	340.1	257.7	2.3W		
FEB 15	21 59 1.0	-14-25-58.4	1.38386	0.39827	-9.675	-1.5	4.9	0.998	-4.9	160.9	338.9	265.1	2.0E		
FEB 17	22 12 54.1	-13 -4 -5.0	1.37106	0.38709	-12.528	-1.5	4.9	0.996	-5.0	169.5	337.7	273.0	2.8E		
FEB 19	22 26 46.2	-11-36-47.4	1.35482	0.37559	-15.649	-1.4	5.0	0.991	-5.0	178.1	336.7	281.3	4.1E		
FEB 21	22 40 36.0	-10 -4-23.9	1.33481	0.36399	-19.056	-1.4	5.0	0.982	-5.0	186.7	335.7	290.2	5.7E		
FEB 23	22 54 21.3	-8-27-21.3	1.31070	0.35255	-22.746	-1.3	5.1	0.967	-5.1	195.2	334.8	299.6	7.3E		
FEB 25	23 7 58.5	-6-46-18.5	1.28217	0.34161	-26.689	-1.3	5.2	0.946	-5.1	203.7	334.0	309.7	9.0E		
FEB 27	23 21 23.1	-5 -2 -9.8	1.24898	0.33154	-30.808	-1.2	5.4	0.916	-5.2	212.2	333.3	320.4	10.7E		
MAR 1	23 34 28.6	-3-16 -8.3	1.21100	0.32274	-34.969	-1.2	5.6	0.877	-5.3	220.7	332.7	331.7	12.4E		
MAR 3	23 47 6.2	-1-29-48.1	1.16827	0.31562	-38.972	-1.1	5.8	0.827	-5.4	229.4	332.3	343.6	13.9E		
MAR 5	23 59 5.3	0 14 55.0	1.12113	0.31058	-42.560	-1.0	6.0	0.765	-5.6	238.2	331.9	355.9	15.4E		
MAR 7	0 10 13.2	1 55 46.3	1.07023	0.30790	-45.448	-0.8	6.3	0.694	-5.7	247.2	331.6	8.6	16.6E		
MAR 9	0 20 15.8	3 30 18.8	1.01652	0.30776	-47.370	-0.7	6.6	0.614	-5.9	256.5	331.5	21.3	17.6E		
MAR 11	0 28 58.8	4 56 2.0	0.96125	0.31015	-48.126	-0.4	7.0	0.528	-6.1	266.2	331.3	34.0	18.2E		
MAR 13	0 36 8.6	6 10 31.2	0.90583	0.31495	-47.619	-0.1	7.4	0.440	-6.4	276.3	331.3	46.4	18.3E		
MAR 15	0 41 33.9	7 11 35.3	0.85172	0.32184	-45.861	0.2	7.9	0.354	-6.6	286.9	331.2	58.4	18.0E		
MAR 17	0 45 6.5	7 57 23.2	0.80032	0.33047	-42.948	0.7	8.4	0.273	-6.9	298.0	331.2	69.7	17.2E		
MAR 19	0 46 42.5	8 26 28.6	0.75288	0.34042	-39.035	1.2	8.9	0.199	-7.1	309.7	331.2	80.5	15.9E		
MAR 21	0 46 24.0	8 37 57.7	0.71044	0.35129	-34.303	1.8	9.5	0.135	-7.3	321.9	331.2	90.6	14.0E		
MAR 23	0 44 19.0	8 31 39.1	0.67385	0.36268	-28.951	2.6	10.0	0.083	-7.5	334.7	331.2	100.1	11.6E		
MAR 25	0 40 43.0	8 8 16.7	0.64370	0.37429	-23.186	3.4	10.5	0.043	-7.5	348.0	331.2	109.1	8.8E		
MAR 27	0 35 58.0	7 29 39.8	0.62035	0.38581	-17.223	4.3	10.8	0.018	-7.5	1.6	331.2	117.5	5.8E		
MAR 29	0 30 30.9	6 38 45.4	0.60389	0.39703	-11.282	5.1	11.1	0.005	-7.4	15.5	331.2	125.4	3.3W		
MAR 31	0 24 51.1	5 39 25.5	0.59418	0.40775	-5.568	5.1	11.3	0.006	-7.3	29.5	331.3	132.9	3.7W		
APR 2	0 19 26.9	4 36 1.8	0.59086	0.41783	-0.257	4.4	11.4	0.019	-7.0	43.5	331.4	140.0	6.5W		
APR 4	0 14 42.5	3 32 52.5	0.59337	0.42715	4.525	3.6	11.3	0.041	-6.6	57.3	331.5	146.8	9.7W		
APR 6	0 10 56.2	2 33 42.8	0.60107	0.43562	8.712	3.0	11.2	0.070	-6.2	70.9	331.6	153.3	12.8W		
APR 8	0 8 19.8	1 41 26.7	0.61325	0.44315	12.291	2.5	11.0	0.104	-5.7	84.1	331.7	159.6	15.7W		
APR 10	0 6 59.1	0 58 2.3	0.62923	0.44970	15.292	2.0	10.7	0.142	-5.3	97.1	331.7	165.8	18.2W		
APR 12	0 6 55.2	0 24 36.2	0.64837	0.45523	17.772	1.7	10.4	0.180	-4.8	109.6	331.7	171.7	20.4W		
APR 14	0 8 5.9	0 1 34.8	0.67011	0.45969	19.801	1.4	10.0	0.219	-4.3	121.8	331.7	177.5	22.3W		
APR 16	0 10 26.8	0-11 -4.3	0.69396	0.46308	21.451	1.2	9.7	0.258	-3.8	133.7	331.7	183.2	23.8W		
APR 18	0 13 52.6	0-13-41.9	0.71954	0.46536	22.788	1.0	9.4	0.295	-3.4	145.2	331.7	188.9	25.0W		
APR 20	0 18 17.6	0 -6-49.4	0.74650	0.46653	23.873	0.9	9.0	0.332	-3.0	156.5	331.6	194.5	25.9W		
APR 22	0 23 36.4	0 8 56.8	0.77461	0.46658	24.755	0.7	8.7	0.367	-2.6	167.4	331.5	200.1	26.6W		
APR 24	0 29 43.9	0 32 58.6	0.80363	0.46552	25.475	0.6	8.4	0.400	-2.2	178.2	331.5	205.7	27.0W		
APR 26	0 36 35.9	1 4 38.8	0.83341	0.46335	26.065	0.5	8.1	0.433	-1.8	188.7	331.5	211.4	27.1W		
APR 28	0 44 8.5	1 43 21.5	0.86380	0.46007	26.547	0.5	7.8	0.465	-1.5	199.0	331.4	217.1	27.1W		
APR 30	0 52 18.7	2 28 32.8	0.89470	0.45571	26.936	0.4	7.5	0.496	-1.2	209.1	331.5	222.9	26.9W		
MAY 2	1 1 4.3	3 19 40.8	0.92600	0.45029	27.242	0.3	7.3	0.527	-0.9	219.1	331.5	228.8	26.5W		
MAY 4	1 10 23.4	4 16 15.4	0.95760	0.44384	27.467	0.2	7.0	0.557	-0.6	228.9	331.7	234.9	25.9W		
MAY 6	1 20 15.1	5 17 47.8	0.98942	0.43639	27.607	0.1	6.8	0.588	-0.4	238.5	331.8	241.2	25.2W		
MAY 8	1 30 39.0	6 23 50.6	1.02134	0.42802	27.650	0.0	6.6	0.619	-0.1	248.0	332.1	247.7	24.3W		
MAY 10	1 41 35.1	7 33 56.3	1.05325	0.41878	27.577	-0.1	6.4	0.650	0.1	257.3	332.4	254.5	23.3W		
MAY 12	1 53 4.1	8 47 37.1	1.08499	0.40877	27.359	-0.2	6.2	0.683	0.3	266.5	332.8	261.6	22.1W		
MAY 14	2 5 7.0	10 4 23.7	1.11638	0.39810	26.957	-0.3	6.0	0.716	0.5	275.5	333.4	269.0	20.8W		
MAY 16	2 17 45.5	11 23 44.2	1.14718	0.38692	26.321	-0.4	5.9	0.750	0.7	284.4	334.0	276.9	19.4W		
MAY 18	2 31 1.4	12 45 2.4	1.17708	0.37542	25.389	-0.5	5.7	0.785	0.9	293.2	334.7	285.2	17.8W		
MAY 20	2 44 56.6	14 7 36.5	1.20570	0.36381	24.091	-0.7	5.6	0.820	1.1	301.8	335.6	294.1	16.0W		
MAY 22	2 59 33.4	15 30 37.0	1.23257	0.35238	22.346	-0.8	5.5	0.856	1.3	310.3	336.6	303.6	14.2W		
MAY 24	3 14 53.2	16 53 5.2	1.25713	0.34145	20.078	-1.0	5.4	0.891	1.4	318.7	337.8	313.6	12.1W		
MAY 26	3 30 56.9	18 13 51.4	1.27873	0.33139	17.219	-1.2	5.3	0.924	1.6	326.9	339.1	324.3	10.0W		
MAY 28	3 47 44.1	19 31 34.2	1.29667	0.32261	13.738	-1.4	5.2	0.953	1.7	335.0	340.6	335.7	7.7W		
MAY 30	4 5 12.4	20 44 42.6	1.31025	0.31553	9.655	-1.7	5.1	0.977	1.9	343.0	342.2	347.5	5.4W		
JUN 1	4 23 16.9	21 51 39.5	1.31880	0.31052	5.067	-2.0	5.1	0.993	2.0	350.9	344.0	359.9	3.0W		
JUN 3	4 41 50.3	22 50 49.2	1.32184	0.30788	0.149	-2.2	5.1	1.000	2.2	358.8	345.9	12.6	0.8W		
JUN 5	5 0 42.8	23 40 46.4	1.31912	0.30777	-4.862	-2.1	5.1	0.996	2.4	6.6	348.0	25.3	2.2E		
JUN 7	5 19 42.8	24 20 25.1	1.31068	0.31021	-9.709	-1.8	5.1	0.982	2.5	14.5	350.1	38.0	4.6E		
JUN 9	5 38 38.2	24 49 5.6	1.29686	0.31503	-14.159	-1.5	5.2	0.959	2.7	22.5	352.3	50.4	7.0E		

2005 MERCURY

Geocentric Planetary Ephemeris

2005 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h	m	s)	(d	'	"	(a.u.)	(a.u.)	(km/s)	(")					
JUL 1	8	26	7.6	20 19 59.7	0.97010	0.42729	-28.879	0.2	6.9	0.554	5.7	118.8	11.9	150.7	24.7E
JUL 3	8	36	27.4	19 25 34.2	0.93695	0.43574	-28.502	0.3	7.2	0.521	6.1	128.5	13.1	157.3	25.4E
JUL 5	8	45	55.2	18 29 55.6	0.90429	0.44326	-28.021	0.4	7.4	0.488	6.4	138.3	14.1	163.6	25.8E
JUL 7	8	54	30.1	17 33 50.7	0.87225	0.44980	-27.444	0.5	7.7	0.455	6.8	148.4	15.0	169.7	26.1E
JUL 9	9	2	10.6	16 38 6.3	0.84093	0.45531	-26.769	0.6	8.0	0.422	7.2	158.6	15.8	175.6	26.3E
JUL 11	9	8	54.9	15 43 30.0	0.81045	0.45975	-25.989	0.7	8.3	0.389	7.6	169.1	16.6	181.4	26.2E
JUL 13	9	14	40.7	14 50 51.0	0.78093	0.46312	-25.089	0.8	8.6	0.356	8.1	179.8	17.2	187.1	25.9E
JUL 15	9	19	25.2	14 1 0.8	0.75254	0.46538	-24.043	0.9	8.9	0.321	8.5	190.7	17.6	192.8	25.3E
JUL 17	9	23	5.3	13 14 53.8	0.72545	0.46654	-22.823	1.1	9.3	0.287	9.0	201.9	18.0	198.4	24.5E
JUL 19	9	25	37.7	12 33 27.0	0.69989	0.46658	-21.389	1.3	9.6	0.251	9.5	213.3	18.3	204.0	23.5E
JUL 21	9	26	59.3	11 57 40.0	0.67614	0.46550	-19.695	1.5	10.0	0.215	9.9	225.1	18.5	209.6	22.1E
JUL 23	9	27	7.6	11 28 32.8	0.65451	0.46331	-17.694	1.8	10.3	0.179	10.4	237.2	18.5	215.3	20.5E
JUL 25	9	26	1.4	11 7 3.2	0.63539	0.46001	-15.333	2.1	10.6	0.144	10.8	249.6	18.4	221.0	18.5E
JUL 27	9	23	41.7	10 54 2.6	0.61923	0.45564	-12.564	2.5	10.9	0.110	11.2	262.4	18.2	226.8	16.3E
JUL 29	9	20	12.4	10 50 9.8	0.60653	0.45020	-9.345	2.9	11.1	0.079	11.5	275.5	17.9	232.7	13.8E
JUL 31	9	15	41.8	10 55 43.9	0.59782	0.44373	-5.651	3.4	11.3	0.051	11.8	288.8	17.5	238.8	11.1E
AUG 2	9	10	23.0	11 10 36.4	0.59365	0.43627	-1.487	4.0	11.3	0.030	11.9	302.5	16.9	245.1	8.4E
AUG 4	9	4	34.0	11 34 5.1	0.59454	0.42788	3.111	4.6	11.3	0.016	11.9	316.3	16.3	251.6	6.0E
AUG 6	8	58	37.6	12 4 53.1	0.60096	0.41863	8.068	4.8	11.2	0.011	11.8	330.1	15.7	258.4	4.9W
AUG 8	8	52	59.2	12 41 12.0	0.61326	0.40861	13.274	4.5	11.0	0.016	11.6	343.9	15.1	265.5	5.8W
AUG 10	8	48	5.2	13 20 51.4	0.63165	0.39793	18.594	3.9	10.7	0.032	11.3	357.5	14.5	273.0	8.0W
AUG 12	8	44	20.1	14 1 30.5	0.65619	0.38674	23.881	3.1	10.3	0.060	10.9	369.1	14.1	280.9	10.4W
AUG 14	8	42	4.9	14 40 49.1	0.68674	0.37524	28.986	2.4	9.8	0.099	10.4	383.9	13.8	289.2	12.8W
AUG 16	8	41	35.3	15 16 35.7	0.72301	0.36363	33.759	1.8	9.3	0.148	9.8	398.4	13.8	298.1	14.8W
AUG 18	8	43	1.5	15 46 50.8	0.76453	0.35220	38.053	1.2	8.8	0.207	9.2	413.4	13.9	307.6	16.4W
AUG 20	8	46	28.3	16 9 48.0	0.81066	0.34128	41.715	0.8	8.3	0.274	8.7	428.4	14.2	317.6	17.5W
AUG 22	8	51	55.4	16 23 53.5	0.86058	0.33124	44.588	0.3	7.8	0.349	8.1	443.4	14.8	328.4	18.2W
AUG 24	8	59	18.1	16 27 46.8	0.91330	0.32249	46.517	0.0	7.4	0.429	7.6	458.4	15.6	339.7	18.4W
AUG 26	9	8	27.6	16 20 24.5	0.96763	0.31543	47.367	-0.3	7.0	0.512	7.1	473.4	16.5	351.6	18.2W
AUG 28	9	19	11.4	16 1 3.9	1.02227	0.31046	47.054	-0.6	6.6	0.595	6.6	488.4	17.5	363.9	17.6W
AUG 30	9	31	14.2	15 29 29.3	1.07588	0.30785	45.576	-0.8	6.3	0.676	6.2	503.4	18.7	376.6	16.6W
SEP 1	9	44	19.0	14 45 55.4	1.12716	0.30779	43.036	-0.9	6.0	0.750	5.9	518.4	19.9	390.4	15.3W
SEP 3	9	58	8.2	13 51 7.4	1.17498	0.31027	39.633	-1.1	5.7	0.815	5.6	533.4	21.1	402.0	13.8W
SEP 5	10	12	25.2	12 46 16.4	1.21850	0.31513	35.633	-1.2	5.5	0.869	5.3	548.4	22.3	414.0	12.2W
SEP 7	10	26	55.5	11 32 50.6	1.25719	0.32208	31.313	-1.3	5.4	0.913	5.0	563.4	23.4	426.0	10.4W
SEP 9	10	41	27.6	10 12 25.5	1.29082	0.33076	26.921	-1.3	5.2	0.946	4.8	578.4	24.4	437.6	8.6W
SEP 11	10	55	52.8	8 46 35.1	1.31944	0.34074	22.645	-1.4	5.1	0.969	4.6	593.4	25.3	449.2	6.7W
SEP 13	11	10	5.6	7 16 45.8	1.34324	0.35163	18.607	-1.5	5.0	0.985	4.5	608.4	26.1	460.8	4.9W
SEP 15	11	24	2.5	5 44 13.0	1.36255	0.36304	14.871	-1.6	4.9	0.994	4.3	623.4	26.8	472.4	3.3W
SEP 17	11	37	41.8	4 10 0.3	1.37774	0.37464	11.458	-1.6	4.9	0.998	4.1	638.4	27.3	484.0	1.9W
SEP 19	11	51	3.3	2 34 59.8	1.38916	0.38616	8.358	-1.6	4.8	0.999	4.0	653.4	27.8	495.6	1.7E
SEP 21	12	4	7.5	0 59 53.9	1.39716	0.39737	5.546	-1.4	4.8	0.996	3.9	668.4	28.1	507.2	2.8E
SEP 23	12	16	55.5	0 34 43.2	1.40207	0.40808	2.988	-1.2	4.8	0.992	3.7	683.4	28.4	518.8	4.2E
SEP 25	12	29	28.5	-2 8 23.8	1.40416	0.41813	0.648	-1.0	4.8	0.986	3.6	698.4	28.5	530.4	5.7E
SEP 27	12	41	48.1	-3 40 45.2	1.40365	0.42743	-1.509	-0.9	4.8	0.978	3.5	713.4	28.6	542.0	7.1E
SEP 29	12	53	55.8	-5 11 28.9	1.40073	0.43586	-3.515	-0.8	4.8	0.970	3.4	728.4	28.6	553.6	8.5E
OCT 1	13	5	53.1	-6 40 19.0	1.39558	0.44337	-5.400	-0.7	4.8	0.961	3.3	743.4	28.5	565.2	9.8E
OCT 3	13	17	41.3	-8 7 2.3	1.38830	0.44989	-7.190	-0.6	4.8	0.952	3.1	758.4	28.3	576.8	11.1E
OCT 5	13	29	21.8	-9 31 26.8	1.37900	0.45538	-8.907	-0.5	4.9	0.941	3.0	773.4	28.0	588.4	12.3E
OCT 7	13	40	55.6	-10 53 21.6	1.36775	0.45982	-10.572	-0.4	4.9	0.931	2.9	788.4	27.6	599.6	13.5E
OCT 9	13	52	23.6	-12 12 36.5	1.35460	0.46316	-12.201	-0.3	5.0	0.919	2.8	803.4	27.2	610.8	14.6E
OCT 11	14	3	46.7	-13 29 1.5	1.33957	0.46541	-13.809	-0.3	5.0	0.907	2.7	818.4	26.7	622.0	15.7E
OCT 13	14	15	5.2	-14 42 26.7	1.32270	0.46655	-15.409	-0.2	5.1	0.894	2.5	833.4	26.2	633.2	16.8E
OCT 15	14	26	19.5	-15 52 41.8	1.30398	0.46657	-17.012	-0.2	5.2	0.880	2.4	848.4	25.6	644.4	17.7E
OCT 17	14	37	29.4	-16 59 36.5	1.28340	0.46547	-18.627	-0.2	5.2	0.864	2.3	863.4	24.9	655.6	18.7E
OCT 19	14	48	34.7	-18 2 59.7	1.26094	0.46326	-20.262	-0.2	5.3	0.848	2.1	878.4	24.2	666.8	19.5E
OCT 21	14	59	34.3	-19 2 39.5	1.23659	0.45995	-21.924	-0.1	5.4	0.830	2.0	893.4	23.4	678.0	20.3E
OCT 23	15	10	26.9	-19 58 23.1	1.21029	0.45556	-23.615	-0.1	5.6	0.809	1.8	908.4	22.6	689.2	21.1E
OCT 25	15	21	10.5	-20 49 56.1	1.18203	0.45010	-25.333	-0.1	5.7	0.787	1.7	923.4	21.7	700.4	21.7E
OCT 27	15	31	42.0	-21 37 2.8	1.15176	0.44362	-27.071	-0.1	5.8	0.762	1.5	938.4	20.8	711.6	22.3E
OCT 29	15	41	57.4	-22 19 25.6	1.11949	0.43615	-28.815	-0.1	6.0	0.734	1.4	953.4	19.9	722.8	22.8E
OCT 31	15	51	51.5	-22 56 44.9	1.08521	0.42774	-30.540	-0.1	6.2	0.702	1.2	968.4	19.0	734.0	23.2E
NOV 2	16	1	17.1	-23 28 38.5	1.04896	0.41848	-32.206	-0.1	6.4	0.666	1.0	983.4	18.2	745.2	23.4E
NOV 4	16	10	5.3	-23 54 40.9	1.01086	0.40845	-33.751	-0.1	6.7	0.624	0.8	998.4	17.3	756.4	23.5E
NOV 6	16	18	4.3	-24 14 22.3	0.97108	0.39776	-35.087	-0.1	6.9	0.577	0.6	1013.4	16.5	767.6	23.4E
NOV 8	16	24	59.4	-24 27 7.0	0.92993	0.38657	-36.081	0.0	7.2	0.523	0.4	1028.4	15.8	778.8	22.9E
NOV 10	16	30	32.5	-24 32 11.4	0.88792	0.37506	-36.551	0.1	7.6	0.461	0.1	1043.4	15.2	790.0	22.2E
NOV 12	16	34	22.2	-24 28 41.6	0.84579	0.36345	-36.247	0.3	8.0	0.392	-0.2	1058.4	14.8	801.2	21.0E
NOV 14	16	36	4.6	-24 15 32.1	0.80461	0.35203	-34.848	0.5	8.4	0.317	-0.5	1073.4	14.7	812.4	19.3E
NOV 16	16	35	16.2	-23 51 28.0	0.76585	0.34112	-31.975	0.9	8.8	0.237	-0.8	1088.4	14.8	823.6	17.1E
NOV 18	16	31	39.5	-23 15 17.0	0.73144	0.33109	-27.244	1.5	9.2	0.157	-1.2	1103.4	15.1	834.8	14.1E
NOV 20	16	25	12.0	-22 26 22.4	0.70371	0.32236	-20.394	2.4	9.6	0.084	-1.6	1118.4	15.8	846.0	10.5E
NOV 22	16	16	16.4	-21 25 40.1	0.68511	0.31534	-11.466	3.6	9.8	0.029	-2.0	1133.4	16.7	857.2	6.2E
NOV 24	16	5	46.6	-20 16 43.6	0.67780	0.31040	-0.986	5.2	9.9	0.002	-2.4	1148.4	17.7	868.4	1.7E
NOV 26	16	55	1.9	-19 6 2.1	0.68302	0.30783	10.039	4.5	9.8	0.009	-2.7	1163.4	18.8	879.6	3.4W
NOV 28	15	45	26.6	-18 1 41.6	0.70069	0.30781	20.378	3.0	9.6	0.051	-3.0				

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 1	17 41	2.6	-23-31-56.1	1.33127	0.45546	17.553	-0.4	5.1	0.918	-4.1	26.6	7.5	183.5	14.8W
JAN 3	17 54	6.2	-23-49-55.9	1.35040	0.45988	15.569	-0.4	5.0	0.930	-4.1	35.9	5.9	189.3	13.8W
JAN 5	18 7	20.5	-24 -3-12.6	1.36727	0.46321	13.643	-0.5	4.9	0.941	-4.2	45.1	4.4	195.0	12.8W
JAN 7	18 20	44.1	-24-11-33.8	1.38194	0.46544	11.764	-0.5	4.9	0.951	-4.2	54.3	2.8	200.7	11.8W
JAN 9	18 34	15.9	-24-14-48.6	1.39446	0.46656	9.920	-0.5	4.8	0.959	-4.3	63.5	1.2	206.3	10.8W
JAN 11	18 47	55.0	-24-12-47.7	1.40487	0.46656	8.099	-0.6	4.8	0.967	-4.3	72.7	359.5	211.9	9.8W
JAN 13	19 1	40.3	-24 -5-22.3	1.41318	0.46545	6.285	-0.6	4.8	0.974	-4.4	81.8	357.9	217.5	8.7W
JAN 15	19 15	30.9	-23-52-24.7	1.41939	0.46322	4.464	-0.7	4.7	0.980	-4.4	90.9	356.2	223.2	7.6W
JAN 17	19 29	26.1	-23-33-47.8	1.42349	0.45989	2.620	-0.8	4.7	0.985	-4.5	100.0	354.6	228.9	6.5W
JAN 19	19 43	25.0	-23 -9-25.2	1.42544	0.45548	0.734	-0.9	4.7	0.990	-4.5	109.0	352.9	234.7	5.4W
JAN 21	19 57	26.7	-22-39-11.1	1.42517	0.45001	-1.210	-1.0	4.7	0.993	-4.6	118.0	351.3	240.6	4.3W
JAN 23	20 11	30.6	-22 -3 -0.8	1.42261	0.44351	-3.235	-1.1	4.7	0.996	-4.7	127.0	349.7	246.7	3.3W
JAN 25	20 25	35.9	-21-20-50.3	1.41766	0.43603	-5.362	-1.2	4.7	0.998	-4.7	135.9	348.1	253.0	2.4W
JAN 27	20 39	41.6	-20-32-36.7	1.41018	0.42761	-7.616	-1.3	4.8	0.998	-4.8	144.8	346.6	259.5	2.1E
JAN 29	20 53	47.0	-19-38-18.9	1.40002	0.41833	-10.021	-1.3	4.8	0.997	-4.9	153.6	345.1	266.3	2.5E
JAN 31	21 7	51.0	-18-37-57.5	1.38697	0.40829	-12.603	-1.3	4.9	0.994	-4.9	162.4	343.6	273.5	3.6E
FEB 2	21 21	52.3	-17-31-36.1	1.37083	0.39759	-15.387	-1.3	4.9	0.989	-5.0	171.2	342.2	280.9	4.8E
FEB 4	21 35	49.3	-16-19-21.8	1.35135	0.38639	-18.393	-1.2	5.0	0.981	-5.1	179.9	340.9	288.8	6.2E
FEB 6	21 49	40.0	-15 -1-27.5	1.32826	0.37488	-21.636	-1.2	5.1	0.968	-5.2	188.6	339.7	297.2	7.7E
FEB 8	22 3	21.5	-13-38-13.4	1.30128	0.36327	-25.118	-1.2	5.2	0.951	-5.3	197.2	338.5	306.1	9.2E
FEB 10	22 16	49.8	-12-10-10.3	1.27016	0.35186	-28.813	-1.1	5.3	0.927	-5.4	205.9	337.4	315.6	10.7E
FEB 12	22 29	59.8	-10-38 -2.9	1.23467	0.34096	-32.662	-1.1	5.4	0.896	-5.6	214.6	336.4	325.7	12.2E
FEB 14	22 42	44.2	-9 -2-53.9	1.19470	0.33095	-36.555	-1.0	5.6	0.855	-5.7	223.3	335.5	336.4	13.6E
FEB 16	22 54	53.9	-7-26 -8.4	1.15028	0.32224	-40.317	-1.0	5.8	0.804	-5.9	232.2	334.7	347.8	15.0E
FEB 18	23 6	17.2	-5-49-36.9	1.10171	0.31525	-43.711	-0.9	6.1	0.742	-6.2	241.2	334.0	359.7	16.2E
FEB 20	23 16	39.8	-4-15-36.3	1.04956	0.31034	-46.445	-0.8	6.4	0.669	-6.4	250.5	333.5	12.0	17.2E
FEB 22	23 25	45.8	-2-46-47.7	0.99479	0.30782	-48.215	-0.6	6.8	0.586	-6.7	260.0	333.0	24.7	17.8E
FEB 24	23 33	18.3	-1-26 -8.9	0.93866	0.30783	-48.752	-0.4	7.2	0.497	-7.1	270.0	332.7	37.5	18.1E
FEB 26	23 39	0.8	0-16-44.0	0.88271	0.31038	-47.876	-0.1	7.6	0.404	-7.4	280.5	332.4	50.2	17.9E
FEB 28	23 42	40.0	0 38 30.7	0.82862	0.31531	-45.527	0.4	8.1	0.313	-7.8	291.5	332.3	62.5	17.2E
MAR 2	23 44	7.1	1 17 2.2	0.77806	0.32233	-41.772	0.9	8.6	0.228	-8.2	303.1	332.2	74.4	15.8E
MAR 4	23 43	20.8	1 36 58.1	0.73258	0.33105	-36.784	1.6	9.2	0.153	-8.6	315.4	332.2	85.8	13.9E
MAR 6	23 40	28.9	1 37 26.0	0.69345	0.34107	-30.818	2.4	9.7	0.091	-9.0	328.4	332.3	96.5	11.4E
MAR 8	23 35	49.7	1 18 53.0	0.66162	0.35198	-24.187	3.3	10.2	0.045	-9.2	341.8	332.4	106.6	8.5E
MAR 10	23 29	51.1	0 43 18.9	0.63767	0.36339	-17.241	4.3	10.6	0.017	-9.4	355.7	332.7	116.1	5.5E
MAR 12	23 23	8.2	0 -5-46.3	0.62176	0.37500	-10.336	4.9	10.8	0.007	-9.4	9.9	333.0	125.0	3.6W
MAR 14	23 16	18.9	-1 -3-46.0	0.61364	0.38651	-3.792	4.6	11.0	0.013	-9.3	24.2	333.3	133.3	5.0W
MAR 16	23 9	58.5	-2 -5-38.5	0.61274	0.39771	2.138	3.8	11.0	0.033	-9.1	38.3	333.7	141.2	8.2W
MAR 18	23 4	35.6	-3 -6-40.9	0.61826	0.40840	7.299	3.0	10.9	0.063	-8.8	52.3	334.0	148.7	11.5W
MAR 20	23 0	29.7	-4 -3 -3.4	0.62927	0.41843	11.632	2.4	10.7	0.101	-8.4	65.9	334.2	155.8	14.7W
MAR 22	22 57	51.4	-4-52 -2.7	0.64481	0.42770	15.160	2.0	10.4	0.143	-7.9	79.1	334.4	162.6	17.5W
MAR 24	22 56	43.9	-5-32 -0.1	0.66400	0.43611	17.955	1.6	10.1	0.187	-7.5	92.0	334.5	169.1	19.9W
MAR 26	22 57	4.8	-6 -2 -8.7	0.68604	0.44359	20.119	1.3	9.8	0.231	-7.0	104.4	334.5	175.4	22.0W
MAR 28	22 58	48.4	-6-22-18.3	0.71027	0.45008	21.761	1.1	9.5	0.274	-6.5	116.4	334.5	181.5	23.7W
MAR 30	23 1	47.3	-6-32-41.6	0.73615	0.45554	22.983	0.9	9.1	0.315	-6.0	128.1	334.3	187.4	25.1W
APR 1	23 5	53.7	-6-33-44.2	0.76324	0.45994	23.873	0.8	8.8	0.354	-5.6	139.4	334.1	193.2	26.1W
APR 3	23 10	59.8	-6-25-57.8	0.79120	0.46325	24.507	0.6	8.5	0.392	-5.1	150.5	333.8	199.0	26.9W
APR 5	23 16	58.7	-6 -9-55.6	0.81978	0.46547	24.944	0.6	8.2	0.427	-4.7	161.3	333.6	204.6	27.4W
APR 7	23 23	43.9	-5-46-10.1	0.84877	0.46657	25.231	0.5	7.9	0.460	-4.3	171.9	333.2	210.2	27.7W
APR 9	23 31	10.2	-5-15-11.7	0.87802	0.46655	25.401	0.4	7.7	0.491	-3.9	182.3	332.9	215.8	27.8W
APR 11	23 39	13.1	-4-37-28.9	0.90741	0.46542	25.482	0.3	7.4	0.521	-3.6	192.5	332.6	221.4	27.7W
APR 13	23 47	48.8	-3-53-27.3	0.93686	0.46318	25.491	0.3	7.2	0.550	-3.2	202.6	332.3	227.1	27.4W
APR 15	23 56	54.6	-3 -3-30.6	0.96628	0.45984	25.439	0.2	7.0	0.578	-2.9	212.4	332.1	232.8	26.9W
APR 17	0 6	28.1	-2 -8 -0.6	0.99561	0.45541	25.331	0.2	6.8	0.605	-2.6	222.2	331.8	238.6	26.3W
APR 19	0 16	27.8	-1 -7-17.5	1.02478	0.44993	25.165	0.1	6.6	0.632	-2.3	231.8	331.6	244.6	25.6W
APR 21	0 26	52.6	0 -1-40.5	1.05372	0.44341	24.935	0.0	6.4	0.659	-2.0	241.2	331.5	250.7	24.7W
APR 23	0 37	42.2	1 8 31.8	1.08235	0.43591	24.628	0.0	6.2	0.686	-1.8	250.6	331.4	257.0	23.7W
APR 25	0 48	56.5	2 23 1.1	1.11058	0.42748	24.227	-0.1	6.1	0.713	-1.5	259.8	331.4	263.5	22.6W
APR 27	1 0	36.0	3 41 28.7	1.13827	0.41819	23.705	-0.2	5.9	0.740	1.3	268.9	331.5	270.3	21.4W
APR 29	1 12	41.7	5 3 35.1	1.16528	0.40814	23.031	-0.3	5.8	0.768	-1.0	277.8	331.7	277.4	20.0W
MAY 1	1 25	14.8	6 28 58.6	1.19141	0.39743	22.163	0.4	5.6	0.797	-0.8	286.7	331.9	284.9	18.5W
MAY 3	1 38	16.9	7 57 14.9	1.21639	0.38623	21.048	-0.6	5.5	0.826	-0.6	295.4	332.3	292.8	16.9W
MAY 5	1 51	50.1	9 27 55.2	1.23992	0.37471	19.626	-0.7	5.4	0.856	-0.4	304.0	332.8	301.1	15.2W
MAY 7	2 5	56.2	11 0 25.0	1.26159	0.36310	17.828	-0.9	5.3	0.885	-0.2	312.5	333.4	310.1	13.3W
MAY 9	2 20	37.2	12 34 1.8	1.28094	0.35169	15.581	-1.0	5.3	0.914	0.0	320.9	334.1	319.5	11.3W
MAY 11	2 35	54.8	14 7 53.4	1.29740	0.34080	12.821	-1.2	5.2	0.941	0.2	329.1	335.0	329.6	9.2W
MAY 13	2 51	49.7	15 40 56.1	1.31035	0.33081	9.502	-1.5	5.1	0.965	0.3	337.3	336.1	340.4	7.0W
MAY 15	3 8	21.4	17 11 53.7	1.31914	0.32212	5.616	-1.7	5.1	0.984	0.5	345.3	337.3	351.7	4.6W
MAY 17	3 25	27.9	18 39 18.4	1.32314	0.31516	1.215	-2.0	5.1	0.996	0.7	353.3	338.6	3.7	2.2W
MAY 19	3 43	4.6	20 1 34.2	1.32181	0.31028	-3.574	-2.3	5.1	1.000	0.9	1.2	340.2	16.0	0.4E
MAY 21	4 1	4.7	21 17 3.2	1.31482	0.30779	-8.550	-2.0	5.1	0.994	1.1	9.0	341.8	28.7	2.7E
MAY 23	4 19	19.5	22 24 14.8	1.30210	0.30784	-13.465	-1.8	5.2	0.977	1.3	16.9	343.6	41.5	5.2E
MAY 25	4 37	38.2	23 21 54.5	1.28385	0.31043	-18.064	-1.5	5.2	0.951	1.5	24.9	345.5	54.1	7.6E
MAY 27	4 55	49.9	24 9 11.8	1.26058	0.31540	-22.134	-1.3	5.3	0.916	1.7	32.9	347.4	66.5	9.9E
MAY 29	5 13	43.8	24 45 42.8	1.23299	0.32244	-25.539	-1.1	5.5	0.875	1.9	41.1	349.4	78.4	12.1E
MAY 31	5 31	10.3	25 11 29.3	1.20187	0.33119	-28.228	-0.9	5.6	0.831	2.1	49.4	351.4	89.7	14.2E
JUN 2	5 48	1.4	25 26 54.7	1.16805	0.34122	-30.220	-0.7	5.8	0.784	2.4	57.9	353.4	100.4	16.1E
JUN 4	6 4	10.8	25 32 37.8	1.13230	0.35214	-31.582	-0.6	5.9	0.736	2.6	66.5	355.3	110.5	17.8E
JUN 6	6 19	33.5	25 29 27.8	1.09530	0.36356	-32.4								

2006 MERCURY

Geocentric Planetary Ephemeris

2006 MERCURY

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E.	S.E.	P.A.	Ls	Solar	
	(h	m	s)	(d	'	(a.u.)	(a.u.)	(km/s)	(")		Lat	Long	Axis		Elong	
JUL 2	8 11	32.2		18 12	3.6	0.66137	0.46549	-20.473	1.7	10.2	0.192	8.5	208.5	10.4	208.5	21.1E
JUL 4	8 12	13.4		17 38	8.1	0.63896	0.46658	-18.277	2.0	10.5	0.158	9.0	220.5	10.5	214.1	19.6E
JUL 6	8 11	38.4		17 8	22.1	0.61925	0.46655	-15.800	2.3	10.9	0.126	9.5	232.8	10.4	219.7	17.7E
JUL 8	8 9	48.9		16 43	31.4	0.60257	0.46540	-13.011	2.7	11.2	0.095	10.0	245.4	10.2	225.3	15.6E
JUL 10	8 6	49.8		16 24	15.9	0.58931	0.46314	-9.889	3.1	11.4	0.068	10.4	258.4	9.9	230.9	13.3E
JUL 12	8 2	49.6		16 11	6.0	0.57985	0.45978	-6.429	3.6	11.6	0.044	10.8	271.6	9.4	236.7	10.8E
JUL 14	7 58	0.6		16 4	19.5	0.57458	0.45534	-2.642	4.2	11.7	0.026	11.1	285.0	8.9	242.5	8.2E
JUL 16	7 52	39.2		16 3	58.9	0.57385	0.44984	1.433	4.7	11.7	0.014	11.3	298.6	8.3	248.4	6.0E
JUL 18	7 47	5.5		16 9	50.2	0.57796	0.44331	5.739	4.9	11.6	0.010	11.4	312.2	7.6	254.5	4.9W
JUL 20	7 41	41.3		16 21	22.9	0.58715	0.43579	10.199	4.7	11.5	0.013	11.3	325.8	7.0	260.8	5.7W
JUL 22	7 36	49.1		16 37	52.5	0.60154	0.42734	14.729	4.1	11.2	0.025	11.2	339.3	6.4	267.3	7.6W
JUL 24	7 32	50.1		16 58	22.5	0.62116	0.41804	19.239	3.5	10.8	0.046	11.0	352.6	5.9	274.1	9.9W
JUL 26	7 30	2.5		17 21	48.1	0.64593	0.40798	23.646	2.9	10.4	0.075	10.7	5.6	5.6	281.3	12.2W
JUL 28	7 28	41.0		17 46	58.5	0.67570	0.39726	27.872	2.3	10.0	0.112	10.3	18.2	5.4	288.7	14.3W
JUL 30	7 28	56.3		18 12	38.8	0.71021	0.38605	31.844	1.8	9.5	0.156	9.8	30.5	5.4	296.6	16.0W
AUG 1	7 30	55.4		18 37	30.6	0.74913	0.37453	35.488	1.3	9.0	0.207	9.4	42.3	5.6	305.0	17.4W
AUG 3	7 34	41.7		19 0 12.7		0.79203	0.36293	38.724	0.9	8.5	0.265	8.9	53.7	6.1	313.9	18.4W
AUG 5	7 40	16.1		19 19	20.9	0.83839	0.35152	41.458	0.5	8.0	0.328	8.4	64.7	6.7	323.4	19.0W
AUG 7	7 47	36.8		19 33	28.5	0.88756	0.34064	43.577	0.2	7.6	0.397	8.0	75.3	7.6	333.5	19.2W
AUG 9	7 56	39.4		19 41	8.2	0.93877	0.33067	44.955	-0.1	7.2	0.470	7.6	85.5	8.6	344.3	19.0W
AUG 11	8 7	17.5		19 40	55.3	0.99108	0.32200	45.460	-0.4	6.8	0.546	7.2	95.2	9.9	355.7	18.4W
AUG 13	8 19	21.7		19 31	33.4	1.04341	0.31506	44.983	-0.6	6.4	0.623	6.8	104.7	11.2	7.6	17.5W
AUG 15	8 32	40.4		19 12	1.9	1.09460	0.31023	43.470	-0.8	6.1	0.698	6.5	113.8	12.7	20.0	16.3W
AUG 17	8 46	59.1		18 41	43.4	1.14345	0.30777	40.951	-1.0	5.9	0.768	6.2	122.6	14.2	32.6	14.9W
AUG 19	9 2	2.4		18 0	29.7	1.18887	0.30786	37.557	-1.1	5.7	0.830	5.9	131.3	15.8	45.4	13.2W
AUG 21	9 17	33.9		17 8	43.8	1.22997	0.31049	33.504	-1.2	5.5	0.883	5.7	139.7	17.4	58.0	11.4W
AUG 23	9 33	18.6		16 7	16.4	1.26613	0.31549	29.057	-1.4	5.3	0.925	5.5	148.1	18.9	70.4	9.4W
AUG 25	9 49	3.5		14 57	18.3	1.29706	0.32256	24.477	-1.5	5.2	0.957	5.3	156.4	20.3	82.3	7.5W
AUG 27	10 4	38.2		13 40	11.6	1.32273	0.33133	19.985	-1.6	5.1	0.978	5.2	164.7	21.6	93.6	5.5W
AUG 29	10 19	55.7		12 17	20.3	1.34334	0.34138	15.734	-1.7	5.0	0.991	5.0	172.9	22.8	104.3	3.6W
AUG 31	10 34	51.2		10 50	4.2	1.35922	0.35231	11.814	-1.7	4.9	0.997	4.9	181.3	23.9	114.4	2.1W
SEP 2	10 49	22.3		9 19	34.6	1.37078	0.36374	8.261	-1.7	4.9	0.998	4.8	189.7	24.9	123.8	1.9E
SEP 4	11 3	28.3		7 46	53.3	1.37845	0.37535	5.072	-1.5	4.9	0.995	4.7	198.1	25.7	132.7	3.1E
SEP 6	11 17	9.5		6 12	52.4	1.38264	0.38685	2.224	-1.3	4.9	0.988	4.6	206.6	26.5	141.0	4.7E
SEP 8	11 30	26.9		4 38	14.7	1.38371	0.39804	-0.323	-1.1	4.9	0.980	4.5	215.2	27.1	148.9	6.3E
SEP 10	11 43	22.2		3 3	35.4	1.38200	0.40871	-2.611	-0.9	4.9	0.970	4.5	223.9	27.6	156.4	7.9E
SEP 12	11 55	57.0		1 29	23.3	1.37777	0.41872	-4.683	-0.8	4.9	0.960	4.4	232.7	28.0	163.5	9.4E
SEP 14	12 8	13.2		0 -3	57.6	1.37125	0.42797	-6.577	-0.7	4.9	0.948	4.3	241.5	28.3	170.3	10.9E
SEP 16	12 20	12.5		-1 -36	-7.2	1.36263	0.43635	-8.329	-0.6	4.9	0.936	4.3	250.4	28.5	176.8	12.3E
SEP 18	12 31	56.5		-3 -6	-48.3	1.35206	0.44380	-9.970	-0.5	5.0	0.923	4.2	259.4	28.6	183.0	13.6E
SEP 20	12 43	26.7		-4 -35	-45.9	1.33964	0.45026	-11.524	-0.4	5.0	0.910	4.1	268.4	28.6	189.1	14.9E
SEP 22	12 54	44.4		-6 -2	-46.9	1.32547	0.45569	-13.014	-0.3	5.1	0.896	4.0	277.5	28.6	195.1	16.1E
SEP 24	13 5	50.6		-7 -27	-38.9	1.30960	0.46005	-14.459	-0.2	5.1	0.882	4.0	286.7	28.5	200.9	17.2E
SEP 26	13 16	46.3		-8 -50	-10.3	1.29208	0.46334	-15.875	-0.2	5.2	0.867	3.9	295.9	28.3	206.6	18.3E
SEP 28	13 27	32.0		-10 -10	-10.0	1.27293	0.46552	-17.274	-0.1	5.3	0.851	3.8	305.2	28.1	212.2	19.3E
SEP 30	13 38	8.0		-11 -27	-26.3	1.25218	0.46658	-18.667	-0.1	5.4	0.835	3.7	314.6	27.8	217.8	20.2E
OCT 2	13 48	34.3		-12 -41	-47.4	1.22981	0.46654	-20.061	-0.1	5.5	0.817	3.6	324.0	27.4	223.4	21.1E
OCT 4	13 58	50.4		-13 -53	-0.6	1.20583	0.46537	-21.461	-0.1	5.6	0.798	3.6	333.5	27.0	229.0	21.9E
OCT 6	14 8	55.3		-15 0	-52.2	1.18023	0.46310	-22.869	0.0	5.7	0.778	3.5	343.1	26.5	234.7	22.6E
OCT 8	14 18	47.6		-16 -5	-7.0	1.15300	0.45972	-24.285	0.0	5.8	0.756	3.4	352.8	26.0	240.4	23.3E
OCT 10	14 28	25.2		-17 -5	-28.1	1.12413	0.45526	-25.704	0.0	6.0	0.731	3.3	2.6	25.5	246.2	23.8E
OCT 12	14 37	45.1		-18 -1	-36.1	1.09363	0.44974	-27.117	0.0	6.2	0.704	3.2	12.4	24.9	252.2	24.3E
OCT 14	14 46	43.1		-18 -53	-7.9	1.06150	0.44320	-28.504	0.0	6.3	0.674	3.1	22.4	24.3	258.3	24.6E
OCT 16	14 55	14.0		-19 -39	-36.4	1.02780	0.43567	-29.835	0.0	6.5	0.641	3.0	32.5	23.7	264.6	24.8E
OCT 18	15 3	10.7		-20 -20	-28.7	0.99262	0.42721	-31.064	0.0	6.8	0.603	2.8	42.8	23.1	271.1	24.8E
OCT 20	15 10	24.2		-20 -55	-5.0	0.95611	0.41789	-32.127	0.1	7.0	0.561	2.7	53.3	22.6	277.9	24.6E
OCT 22	15 16	43.3		-21 -22	-36.3	0.91851	0.40782	-32.927	0.1	7.3	0.513	2.6	64.0	22.1	285.0	24.2E
OCT 24	15 21	54.2		-21 -42	-1.4	0.88019	0.39709	-33.333	0.2	7.6	0.459	2.4	75.1	21.7	292.5	23.4E
OCT 26	15 25	40.2		-21 -52	-4.6	0.84172	0.38588	-33.163	0.3	8.0	0.399	2.3	86.5	21.4	300.4	22.3E
OCT 28	15 27	42.7		-21 -51	-13.4	0.80389	0.37435	-32.179	0.5	8.4	0.333	2.1	98.3	21.2	308.8	20.8E
OCT 30	15 27	42.3		-21 -37	-39.5	0.76781	0.36275	-30.084	0.9	8.8	0.262	1.9	110.7	21.2	317.7	18.7E
NOV 1	15 25	22.4		-21 -9	-29.4	0.73494	0.35135	-26.541	1.3	9.2	0.189	1.6	123.6	21.4	327.2	16.1E
NOV 3	15 20	34.9		-20 -25	-11.6	0.70716	0.34048	-21.236	2.0	9.5	0.118	1.4	137.2	21.8	337.3	12.8E
NOV 5	15 13	28.1		-19 -24	-29.0	0.68661	0.33052	-13.994	3.0	9.8	0.057	1.1	151.4	22.3	348.1	8.9E
NOV 7	15 4	34.0		-18 -9	-31.7	0.67551	0.32188	-4.946	4.3	10.0	0.014	0.7	166.2	23.0	359.5	4.5E
NOV 9	14 54	49.6		-16 -45	-52.5	0.67564	0.31497	5.348	5.8	10.0	0.000	0.4	181.1	23.7	11.4	0.3W
NOV 11	14 45	28.1		-15 -22	-7.5	0.68794	0.31017	15.929	4.0	9.8	0.019	0.0	196.0	24.4	23.8	4.8W
NOV 13	14 37	40.4		-14 -7	-52.4	0.71209	0.30775	25.687	2.6	9.4	0.069	-0.3	210.5	24.9	36.4	9.1W
NOV 15	14 32	18.2		-13 -10	-54.3	0.74658	0.30788	33.708	1.5	9.0	0.145	-0.7	224.4	25.2	49.2	12.7W
NOV 17	14 29	45.5		-12 -35	-21.3	0.78908	0.31055	39.506	0.8	8.5	0.236	-0.9	237.5	25.3	61.9	15.5W
NOV 19	14 30	1.7		-12 -21	-37.4	0.83696	0.31558	43.037	0.3	8.0	0.333	-1.2	249.8	25.3	74.2	17.5W
NOV 21	14 32	50.0		-12 -27	-28.9	0.88773	0.32269	44.573	-0.1	7.6	0.427	-1.4	261.4	25.2	86.1	18.8W
NOV 23	14 37	46.8		-12 -49	-25.2	0.93932	0.33148	44.531	-0.3	7.2	0.514	-1.5	272.4	24.9	97.4	19.6W
NOV 25	14 44	27.7		-13 -23	-39.8	0.99017	0.34155	43.349	-0.4	6.8	0.591	-1.7	283.0	24.4	108.1	19.9W
NOV 27	14 52	30.8		-14 -6	-44.4	1.03										

1995 VENUS

Geocentric Planetary Ephemeris

1995 VENUS

Date (0 DT)	RA (h m s)	[Mean] Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 1	15 29 37.4	-15-13-51.6	0.57862	0.71846	13.028	-4.4	28.8	0.430	-2.5	65.4	14.6	258.9	46.3W
JAN 3	15 37 4.4	-15-38-51.6	0.59370	0.71849	13.072	-4.4	28.1	0.442	-2.5	70.2	14.0	262.1	46.5W
JAN 5	15 44 42.1	-16 -3-57.2	0.60882	0.71853	13.109	-4.4	27.4	0.454	-2.6	75.0	13.4	265.4	46.7W
JAN 7	15 52 29.9	-16-28-57.6	0.62398	0.71859	13.140	-4.4	26.7	0.466	-2.6	79.9	12.8	268.6	46.8W
JAN 9	16 0 27.5	-16-53-42.5	0.63917	0.71866	13.165	-4.4	26.1	0.477	-2.6	84.8	12.1	271.9	46.9W
JAN 11	16 8 34.5	-17-18 -2.1	0.65439	0.71875	13.184	-4.3	25.5	0.488	-2.6	89.8	11.4	275.1	46.9W
JAN 13	16 16 50.5	-17-41-47.0	0.66963	0.71885	13.197	-4.3	24.9	0.499	-2.6	94.7	10.7	278.4	47.0W
JAN 15	16 25 15.2	-18 -4-48.1	0.68488	0.71897	13.205	-4.3	24.4	0.509	-2.6	99.7	10.0	281.6	47.0W
JAN 17	16 33 48.3	-18-26-56.7	0.70013	0.71910	13.205	-4.3	23.8	0.520	-2.5	104.8	9.2	284.9	46.9W
JAN 19	16 42 29.3	-18-48 -4.3	0.71538	0.71925	13.200	-4.3	23.3	0.530	-2.5	109.8	8.4	288.1	46.9W
JAN 21	16 51 18.0	-19 -8 -2.8	0.73062	0.71940	13.188	-4.3	22.8	0.539	-2.5	114.9	7.6	291.3	46.8W
JAN 23	17 0 13.9	-19-26-44.7	0.74585	0.71957	13.169	-4.3	22.4	0.549	-2.4	120.0	6.8	294.6	46.7W
JAN 25	17 9 16.8	-19-44 -2.7	0.76104	0.71975	13.145	-4.2	21.9	0.558	-2.4	125.1	5.9	297.8	46.6W
JAN 27	17 18 26.0	-19-59-50.0	0.77621	0.71994	13.115	-4.2	21.5	0.568	-2.3	130.2	5.1	301.1	46.4W
JAN 29	17 27 41.3	-20-14 -0.4	0.79134	0.72015	13.081	-4.2	21.1	0.577	-2.2	135.4	4.2	304.3	46.3W
JAN 31	17 37 2.1	-20-26-28.0	0.80643	0.72036	13.045	-4.2	20.7	0.585	-2.2	140.5	3.3	307.5	46.1W
FEB 2	17 46 28.0	-20-37 -7.4	0.82147	0.72058	13.007	-4.2	20.3	0.594	-2.1	145.7	2.4	310.7	45.9W
FEB 4	17 55 58.5	-20-45-53.5	0.83648	0.72081	12.968	-4.2	20.0	0.603	-2.0	150.9	1.4	314.0	45.7W
FEB 6	18 5 33.2	-20-52-41.8	0.85143	0.72105	12.929	-4.2	19.6	0.611	-2.0	156.1	0.5	317.2	45.5W
FEB 8	18 15 11.7	-20-57-28.5	0.86635	0.72130	12.888	-4.1	19.3	0.619	-1.9	161.3	359.6	320.4	45.2W
FEB 10	18 24 53.5	-21 0 -9.9	0.88121	0.72155	12.846	-4.1	18.9	0.627	-1.8	166.6	358.6	323.6	45.0W
FEB 12	18 34 38.3	-21 0 -43.0	0.89602	0.72181	12.802	-4.1	18.6	0.635	-1.7	171.8	357.7	326.9	44.8W
FEB 14	18 44 25.5	-20-59 -5.2	0.91078	0.72207	12.755	-4.1	18.3	0.643	-1.6	177.0	356.8	330.1	44.5W
FEB 16	18 54 14.8	-20-55-14.4	0.92549	0.72233	12.706	-4.1	18.0	0.651	-1.6	182.3	355.8	333.3	44.2W
FEB 18	19 4 5.7	-20-49 -8.8	0.94013	0.72260	12.653	-4.1	17.8	0.658	-1.5	187.6	354.9	336.5	43.9W
FEB 20	19 13 57.7	-20-40-47.3	0.95472	0.72287	12.596	-4.1	17.5	0.665	-1.4	192.8	353.9	339.7	43.6W
FEB 22	19 23 50.6	-20-30 -9.4	0.96923	0.72315	12.535	-4.1	17.2	0.673	-1.3	198.1	353.0	342.9	43.3W
FEB 24	19 33 43.8	-20-17-15.1	0.98367	0.72342	12.471	-4.0	17.0	0.680	-1.2	203.4	352.1	346.1	43.0W
FEB 26	19 43 36.9	-20 -2 -4.9	0.99804	0.72369	12.404	-4.0	16.7	0.687	-1.1	208.7	351.2	349.3	42.7W
FEB 28	19 53 29.4	-19-44-39.9	1.01233	0.72396	12.335	-4.0	16.5	0.694	-1.0	214.0	350.3	352.5	42.4W
MAR 2	20 3 21.0	-19-25 -1.3	1.02654	0.72423	12.265	-4.0	16.3	0.700	-1.0	219.3	349.5	355.7	42.0W
MAR 4	20 13 11.3	-19 -3-11.0	1.04066	0.72450	12.195	-4.0	16.0	0.707	-0.9	224.6	348.6	358.9	41.7W
MAR 6	20 22 59.9	-18-39-11.0	1.05471	0.72476	12.126	-4.0	15.8	0.714	-0.8	229.9	347.8	2.1	41.3W
MAR 8	20 32 46.7	-18-13 -4.0	1.06868	0.72502	12.056	-4.0	15.6	0.720	-0.7	235.3	347.0	5.3	41.0W
MAR 10	20 42 31.3	-17-44-52.6	1.08256	0.72527	11.987	-4.0	15.4	0.727	-0.6	240.6	346.2	8.5	40.6W
MAR 12	20 52 13.6	-17-14-40.1	1.09637	0.72552	11.916	-4.0	15.2	0.733	-0.5	245.9	345.4	11.7	40.3W
MAR 14	21 1 53.4	-16-42-29.8	1.11009	0.72576	11.846	-4.0	15.0	0.739	-0.5	251.2	344.7	14.9	39.9W
MAR 16	21 11 30.5	-16 -8-25.3	1.12373	0.72599	11.773	-3.9	14.9	0.745	-0.4	256.6	344.0	18.0	39.5W
MAR 18	21 21 4.9	-15-32-30.4	1.13729	0.72621	11.699	-3.9	14.7	0.751	-0.3	261.9	343.3	21.2	39.1W
MAR 20	21 30 36.5	-14-54-49.0	1.15076	0.72643	11.621	-3.9	14.5	0.757	-0.3	267.3	342.7	24.4	38.7W
MAR 22	21 40 5.3	-14-15-25.6	1.16413	0.72663	11.539	-3.9	14.3	0.763	-0.2	272.6	342.1	27.6	38.3W
MAR 24	21 49 31.2	-13-34-24.7	1.17741	0.72683	11.453	-3.9	14.2	0.769	-0.1	278.0	341.5	30.7	37.9W
MAR 26	21 58 54.2	-12-51-51.2	1.19059	0.72701	11.365	-3.9	14.0	0.775	-0.1	283.3	341.0	33.9	37.5W
MAR 28	22 8 14.4	-12 -7-49.9	1.20367	0.72718	11.273	-3.9	13.9	0.780	0.0	288.7	340.5	37.1	37.1W
MAR 30	22 17 31.7	-11-22-25.9	1.21664	0.72734	11.181	-3.9	13.7	0.786	0.1	294.0	340.0	40.3	36.7W
APR 1	22 26 46.2	-10-35-44.2	1.22950	0.72749	11.087	-3.9	13.6	0.791	0.1	299.4	339.6	43.4	36.3W
APR 3	22 35 58.0	-9-47-49.9	1.24225	0.72763	10.993	-3.9	13.4	0.797	0.2	304.7	339.2	46.6	35.9W
APR 5	22 45 7.3	-8-58-48.0	1.25489	0.72775	10.899	-3.9	13.3	0.802	0.2	310.1	338.8	49.8	35.4W
APR 7	22 54 14.1	-8 -8-43.9	1.26743	0.72786	10.804	-3.9	13.2	0.807	0.3	315.5	338.5	52.9	35.0W
APR 9	23 3 18.7	-7-17-42.5	1.27985	0.72795	10.709	-3.9	13.0	0.813	0.3	320.8	338.2	56.1	34.6W
APR 11	23 12 21.3	-6-25-49.2	1.29217	0.72803	10.614	-3.9	12.9	0.818	0.3	326.2	337.9	59.3	34.1W
APR 13	23 21 22.0	-5-33 -9.0	1.30437	0.72810	10.517	-3.8	12.8	0.823	0.4	331.6	337.7	62.4	33.7W
APR 15	23 30 21.2	-4-39-47.1	1.31647	0.72815	10.419	-3.8	12.7	0.828	0.4	337.0	337.5	65.6	33.2W
APR 17	23 39 19.0	-3-45-48.4	1.32844	0.72818	10.318	-3.8	12.6	0.833	0.4	342.3	337.4	68.7	32.8W
APR 19	23 48 15.8	-2-51-18.2	1.34030	0.72820	10.213	-3.8	12.5	0.838	0.4	347.7	337.3	71.9	32.3W
APR 21	23 57 11.8	-1-56-21.9	1.35204	0.72821	10.103	-3.8	12.3	0.842	0.5	353.1	337.2	75.1	31.9W
APR 23	0 6 7.3	-1 -1 -4.7	1.36364	0.72820	9.989	-3.8	12.2	0.847	0.5	358.4	337.2	78.2	31.4W
APR 25	0 15 2.4	0 -5-32.2	1.37511	0.72817	9.872	-3.8	12.1	0.852	0.5	3.8	337.2	81.4	31.0W
APR 27	0 23 57.5	0 50 10.2	1.38645	0.72814	9.751	-3.8	12.0	0.856	0.5	9.2	337.2	84.5	30.5W
APR 29	0 32 52.9	1 45 57.3	1.39764	0.72808	9.629	-3.8	11.9	0.861	0.5	14.6	337.3	87.7	30.0W
MAY 1	0 41 48.8	2 41 43.5	1.40869	0.72801	9.505	-3.8	11.8	0.866	0.5	20.0	337.4	90.9	29.5W
MAY 3	0 50 45.4	3 37 23.5	1.41960	0.72793	9.379	-3.8	11.8	0.870	0.5	25.3	337.5	94.0	29.1W
MAY 5	0 59 43.0	4 32 51.9	1.43036	0.72783	9.253	-3.8	11.7	0.874	0.5	30.7	337.7	97.2	28.6W
MAY 7	1 8 42.0	5 28 3.2	1.44097	0.72772	9.126	-3.8	11.6	0.879	0.5	36.1	337.9	100.4	28.1W
MAY 9	1 17 42.6	6 22 52.1	1.45144	0.72759	8.998	-3.8	11.5	0.883	0.5	41.5	338.2	103.5	27.6W
MAY 11	1 26 45.0	7 17 13.1	1.46176	0.72746	8.869	-3.8	11.4	0.887	0.5	46.9	338.5	106.7	27.1W
MAY 13	1 35 49.6	8 11 0.8	1.47193	0.72730	8.739	-3.8	11.3	0.891	0.5	52.2	338.8	109.9	26.7W
MAY 15	1 44 56.6	9 4 9.9	1.48195	0.72714	8.607	-3.8	11.3	0.895	0.4	57.6	339.1	113.0	26.2W
MAY 17	1 54 6.5	9 56 35.0	1.49181	0.72697	8.471	-3.8	11.2	0.899	0.4	63.0	339.5	116.2	25.7W
MAY 19	2 3 19.3	10 48 10.6	1.50152	0.72678	8.330	-3.8	11.1	0.903	0.4	68.4	340.0	119.4	25.2W
MAY 21	2 12 35.3	11 38 50.8	1.51106	0.72658	8.185	-3.8	11.0	0.907	0.4	73.8	340.4	122.6	24.7W
MAY 23	2 21 54.8	12 28 30.1	1.52042	0.72637	8.035	-3.8	11.0	0.911	0.3	79.2	340.9	125.7	24.2W
MAY 25	2 31 17.9	13 17 2.7	1.52962	0.72616	7.881	-3.8	10.9	0.914	0.3	84.6	341.5	128.9	23.7W
MAY 27	2 40 44.9	14 4 23.0	1.53863	0.72593	7.725	-3.8	10.8	0.918	0.3	90.0	342.0	132.1	23.1W
MAY 29	2 50 15.8	14 50 25.2	1.54746	0.72570	7.566	-3.8	10.8	0.922	0.3	95.3	342.7	135.3	22.6W
MAY 31	2 59 50.9	15 35 3.6	1.55611	0.72545	7.405	-3.8	10.7	0.925	0.2	100.7	343.3	138.5	22.1W
JUN 2	3 9 30.1	16 18 12.7	1.56457	0.72521	7.242	-3.8	10.7	0.929	0.2	106.1	344.0	141.6	21.6W
JUN 4	3 19 13.6	16 59 46.6	1.57284	0.72495	7.079	-3.8	10.6	0.932	0.1	111.5	344.7	144.8	21.1W
JUN 6	3 29 1.5	17 39 39.9	1.58092	0.72469	6.915	-3.8	10.6	0.935	0.1	116.9	345.4	148.0	20.6W
JUN 8	3 38 53.8	18 17 47.0	1.58881	0.72443	6.750	-3.8	10.5	0.939	0.1	122.3	346.2	151.2	20.1W
JUN 10													

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 2	5 42 34.3	23 7 6.8	1.66787	0.72123	4.588	-3.8	10.0	0.971	-0.4	187.1	357.3	189.7	13.7W		
JUL 4	5 53 11.9	23 15 7.9	1.67306	0.72099	4.395	-3.8	10.0	0.974	-0.5	192.5	358.3	192.9	13.1W		
JUL 6	6 3 50.9	23 20 26.7	1.67802	0.72075	4.203	-3.8	9.9	0.976	-0.5	197.9	359.3	196.2	12.6W		
JUL 8	6 14 30.9	23 23 1.9	1.68277	0.72052	4.012	-3.8	9.9	0.978	-0.5	203.4	0.4	199.4	12.1W		
JUL 10	6 25 11.3	23 22 52.6	1.68729	0.72030	3.821	-3.8	9.9	0.980	-0.6	208.8	1.4	202.6	11.5W		
JUL 12	6 35 51.7	23 19 58.4	1.69160	0.72009	3.631	-3.8	9.9	0.982	-0.6	214.2	2.4	205.9	11.0W		
JUL 14	6 46 31.8	23 14 19.1	1.69568	0.71989	3.439	-3.8	9.8	0.983	-0.6	219.6	3.4	209.1	10.4W		
JUL 16	6 57 11.1	23 5 55.2	1.69954	0.71970	3.246	-3.8	9.8	0.985	-0.7	225.0	4.5	212.3	9.9W		
JUL 18	7 7 49.2	22 54 47.5	1.70318	0.71953	3.049	-3.8	9.8	0.987	-0.7	230.4	5.5	215.6	9.4W		
JUL 20	7 18 25.7	22 40 57.4	1.70659	0.71936	2.850	-3.8	9.8	0.988	-0.7	235.8	6.5	218.8	8.8W		
JUL 22	7 29 0.2	22 24 26.9	1.70976	0.71921	2.650	-3.8	9.8	0.990	-0.7	241.3	7.5	222.0	8.3W		
JUL 24	7 39 32.3	22 5 18.2	1.71271	0.71907	2.448	-3.8	9.7	0.991	-0.8	246.7	8.4	225.3	7.7W		
JUL 26	7 50 1.7	21 43 34.1	1.71542	0.71894	2.245	-3.8	9.7	0.992	-0.8	252.1	9.4	228.5	7.2W		
JUL 28	8 0 28.0	21 19 17.8	1.71789	0.71883	2.041	-3.8	9.7	0.993	-0.8	257.5	10.3	231.8	6.7W		
JUL 30	8 10 50.9	20 52 32.7	1.72013	0.71873	1.838	-3.8	9.7	0.994	-0.8	263.0	11.2	235.0	6.1W		
AUG 1	8 21 10.2	20 23 22.6	1.72214	0.71865	1.636	-3.8	9.7	0.995	-0.8	268.4	12.1	238.3	5.6W		
AUG 3	8 31 25.7	19 51 51.7	1.72392	0.71858	1.436	-3.8	9.7	0.996	-0.8	273.8	12.9	241.5	5.0W		
AUG 5	8 41 37.1	19 18 4.3	1.72546	0.71852	1.238	-3.8	9.7	0.997	-0.8	279.2	13.7	244.8	4.5W		
AUG 7	8 51 44.4	18 42 5.0	1.72678	0.71848	1.042	-3.8	9.7	0.998	-0.8	284.7	14.5	248.0	4.0W		
AUG 9	9 1 47.4	18 3 58.8	1.72787	0.71846	0.850	-3.8	9.7	0.998	-0.8	290.1	15.3	251.3	3.5W		
AUG 11	9 11 46.1	17 23 50.6	1.72874	0.71845	0.658	-3.8	9.7	0.999	-0.8	295.5	16.0	254.5	3.0W		
AUG 13	9 21 40.5	16 41 45.4	1.72939	0.71846	0.468	-3.8	9.7	0.999	-0.8	301.0	16.7	257.8	2.5W		
AUG 15	9 31 30.6	15 57 48.5	1.72982	0.71848	0.277	-3.8	9.6	0.999	-0.8	306.4	17.3	261.0	2.1W		
AUG 17	9 41 16.5	15 12 5.3	1.73003	0.71852	0.085	-3.8	9.6	1.000	-0.8	311.8	18.0	264.2	1.7W		
AUG 19	9 50 58.3	14 24 41.3	1.73002	0.71857	-0.107	-3.8	9.6	1.000	-0.8	317.3	18.6	267.5	1.4W		
AUG 21	10 0 36.1	13 35 42.2	1.72978	0.71864	-0.300	-3.8	9.6	1.000	-0.8	322.7	19.1	270.7	1.3E		
AUG 23	10 10 10.0	12 45 13.8	1.72933	0.71873	-0.492	-3.8	9.7	1.000	-0.7	328.1	19.6	274.0	1.5E		
AUG 25	10 19 40.1	11 53 22.0	1.72865	0.71882	-0.684	-3.8	9.7	1.000	-0.7	333.6	20.1	277.2	1.8E		
AUG 27	10 29 6.7	11 0 12.4	1.72775	0.71894	-0.875	-3.8	9.7	0.999	-0.7	339.0	20.5	280.5	2.2E		
AUG 29	10 38 29.9	10 5 51.0	1.72663	0.71906	-1.064	-3.8	9.7	0.999	-0.7	344.5	20.9	283.7	2.6E		
AUG 31	10 47 49.9	9 10 23.6	1.72529	0.71920	-1.251	-3.8	9.7	0.999	-0.6	349.9	21.3	287.0	3.1E		
SEP 2	10 57 7.0	8 13 56.1	1.72374	0.71935	-1.435	-3.8	9.7	0.998	-0.6	355.3	21.6	290.2	3.6E		
SEP 4	11 6 21.4	7 16 34.3	1.72198	0.71952	-1.614	-3.8	9.7	0.997	-0.6	0.8	21.9	293.4	4.1E		
SEP 6	11 15 33.4	6 18 24.1	1.72001	0.71970	-1.790	-3.8	9.7	0.997	-0.5	6.2	22.2	296.7	4.6E		
SEP 8	11 24 43.4	5 19 31.3	1.71784	0.71989	-1.962	-3.8	9.7	0.996	-0.5	11.7	22.4	299.9	5.1E		
SEP 10	11 33 51.5	4 20 1.6	1.71548	0.72008	-2.131	-3.8	9.7	0.995	-0.4	17.1	22.5	303.1	5.6E		
SEP 12	11 42 58.2	3 20 0.7	1.71292	0.72029	-2.299	-3.8	9.7	0.994	-0.4	22.6	22.7	306.4	6.2E		
SEP 14	11 52 3.8	2 19 34.3	1.71017	0.72051	-2.466	-3.8	9.8	0.993	-0.3	28.0	22.8	309.6	6.7E		
SEP 16	12 1 8.6	1 18 48.2	1.70722	0.72074	-2.632	-3.8	9.8	0.992	-0.3	33.5	22.8	312.8	7.2E		
SEP 18	12 10 13.0	0 17 48.2	1.70409	0.72098	-2.798	-3.8	9.8	0.991	-0.2	38.9	22.9	316.1	7.7E		
SEP 20	12 19 17.2	-0 43-19.7	1.70076	0.72122	-2.963	-3.8	9.8	0.990	-0.2	44.4	22.8	319.3	8.2E		
SEP 22	12 28 21.8	-1 44-29.7	1.69724	0.72147	-3.128	-3.8	9.8	0.989	-0.1	49.8	22.8	322.5	8.8E		
SEP 24	12 37 26.8	-2 45-35.9	1.69354	0.72172	-3.292	-3.8	9.9	0.987	0.0	55.3	22.7	325.7	9.3E		
SEP 26	12 46 32.8	-3 46-32.2	1.68964	0.72198	-3.454	-3.8	9.9	0.986	0.0	60.7	22.6	328.9	9.8E		
SEP 28	12 55 40.0	-4 47-12.6	1.68556	0.72225	-3.615	-3.8	9.9	0.984	0.1	66.2	22.4	332.2	10.3E		
SEP 30	13 4 48.7	-5 47-31.3	1.68129	0.72252	-3.772	-3.8	9.9	0.983	0.2	71.6	22.2	335.4	10.8E		
OCT 2	13 13 59.3	-6 47-22.0	1.67685	0.72279	-3.925	-3.8	10.0	0.981	0.2	77.1	21.9	338.6	11.3E		
OCT 4	13 23 12.1	-7 46-38.7	1.67222	0.72306	-4.074	-3.8	10.0	0.979	0.3	82.5	21.7	341.8	11.9E		
OCT 6	13 32 27.3	-8 45-15.2	1.66743	0.72333	-4.219	-3.8	10.0	0.978	0.4	88.0	21.3	345.0	12.4E		
OCT 8	13 41 45.4	-9 43-5.5	1.66248	0.72360	-4.361	-3.8	10.0	0.976	0.4	93.4	21.0	348.2	12.9E		
OCT 10	13 51 6.5	-10 40-3.5	1.65736	0.72388	-4.500	-3.8	10.1	0.974	0.5	98.9	20.6	351.4	13.4E		
OCT 12	14 0 31.1	-11 36-3.1	1.65208	0.72415	-4.637	-3.8	10.1	0.972	0.6	104.3	20.2	354.6	13.9E		
OCT 14	14 9 59.4	-12 30-58.0	1.64665	0.72441	-4.773	-3.8	10.1	0.970	0.7	109.8	19.7	357.8	14.4E		
OCT 16	14 19 31.6	-13 24-42.0	1.64106	0.72468	-4.909	-3.8	10.2	0.968	0.7	115.2	19.2	1.0	14.9E		
OCT 18	14 29 8.0	-14 17-8.7	1.63531	0.72494	-5.044	-3.8	10.2	0.965	0.8	120.7	18.7	4.2	15.4E		
OCT 20	14 38 48.9	-15 -8-11.6	1.62941	0.72519	-5.179	-3.8	10.2	0.963	0.9	126.1	18.1	7.4	15.9E		
OCT 22	14 48 34.3	-15 57-44.5	1.62335	0.72544	-5.314	-3.8	10.3	0.961	0.9	131.6	17.5	10.6	16.4E		
OCT 24	14 58 24.4	-16 45-40.9	1.61713	0.72568	-5.448	-3.8	10.3	0.958	1.0	137.0	16.8	13.7	16.9E		
OCT 26	15 8 19.4	-17 31-54.4	1.61076	0.72591	-5.582	-3.8	10.4	0.956	1.1	142.5	16.1	16.9	17.4E		
OCT 28	15 18 19.3	-18 16-18.7	1.60423	0.72614	-5.715	-3.8	10.4	0.954	1.1	147.9	15.4	20.1	17.9E		
OCT 30	15 28 24.1	-18 58-47.5	1.59756	0.72636	-5.844	-3.8	10.4	0.951	1.2	153.4	14.6	23.3	18.4E		
NOV 1	15 38 33.9	-19 39-14.6	1.59074	0.72657	-5.970	-3.8	10.5	0.948	1.3	158.8	13.9	26.5	18.9E		
NOV 3	15 48 48.4	-20 17-33.8	1.58377	0.72676	-6.092	-3.8	10.5	0.946	1.3	164.3	13.0	29.6	19.4E		
NOV 5	15 59 7.8	-20 53-39.3	1.57666	0.72695	-6.211	-3.8	10.6	0.943	1.4	169.7	12.2	32.8	19.9E		
NOV 7	16 9 32.0	-21 27-25.4	1.56942	0.72713	-6.328	-3.8	10.6	0.940	1.4	175.2	11.3	36.0	20.3E		
NOV 9	16 20 0.6	-21 58-46.6	1.56205	0.72729	-6.443	-3.8	10.7	0.937	1.5	180.6	10.4	39.1	20.8E		
NOV 11	16 30 33.7	-22 27-37.9	1.55454	0.72745	-6.556	-3.8	10.7	0.934	1.5	186.1	9.5	42.3	21.3E		
NOV 13	16 41 10.8	-22 53-54.1	1.54690	0.72758	-6.669	-3.8	10.8	0.932	1.6	191.6	8.5	45.5	21.8E		
NOV 15	16 51 51.9	-23 17-30.7	1.53913	0.72771	-6.782	-3.8	10.8	0.929	1.6	197.0	7.5	48.7	22.3E		
NOV 17	17 2 36.4	-23 38-23.4	1.53123	0.72782	-6.895	-3.8	10.9	0.925	1.7	202.5	6.5	51.8	22.7E		
NOV 19	17 13 24.0	-23 56-28.2	1.52320	0.72792	-7.009	-3.8	11.0	0.922	1.7	207.9	5.5	55.0	23.2E		
NOV 21	17 24 14.3	-24 11-41.7	1.51504	0.72801	-7.124	-3.8	11.0	0.919	1.8	213.4	4.5	58.1	23.7E		
NOV 23	17 35 6.9	-24 24-1.1	1.50674	0.72808	-7.240	-3.8	11.1	0.916	1.8	218.8	3.5	61.3	24.1E		
NOV 25	17 46 1.3	-24 33-24.0	1.49831	0.72813	-7.356	-3.8	11.1	0.913	1.8	224.3	2.4	64.5	24.6E		
NOV 27	17 56 56.8	-24 39-48.4	1.48975	0.72817	-7.471	-3.8	11.2	0.909	1.9	229.7	1.4	67.6	25.1E		
NOV 29	18 7 53.0	-24 43-13.0	1.48106	0.72820	-7.584	-3.8	11.3	0.906	1.9	235.2	0.3	70.8	25.5E		
DEC 1	18 18 49.2	-24 43-36.9	1.47223	0.72821	-7.694	-3.8	11.3	0.902	1.9	240.6	359.2	74.0	26.0E		
DEC 3	18 29 45.0	-24 40-60.0	1.46328	0.72821	-7.802	-3.8	11.4	0.899	1.9	246.0	358.2	77.1	26.5E		
DEC 5	18 40 39.7	-24 35-22.4	1.45421	0.72819	-7.907	-3.8	11.5	0.895	1.9	251.5	357.1	80.3	26.9E		
DEC 7	18 51 32.9	-24 26-45.3	1.44502	0.72815	-8.011	-3.8	11.5	0.891	1.9	256.9	356.1	83.4	27.4E		
DEC 9	19 2 24.0	-24 15-9.9	1.43570	0.72810	-8.114	-3.8	11.6	0							

Date (0 DT)	RA (h m s)	[Mean] (d ° ' ")	Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 2	21 7 27.8	-18-24-16.6	1.31450	0.72645	-9.386	-3.9	12.7	0.837	1.5	327.6	344.3	124.6	33.0E	
JAN 4	21 17 18.9	-17-39-46.4	1.30360	0.72623	-9.489	-3.9	12.8	0.833	1.5	333.0	343.6	127.8	33.5E	
JAN 6	21 27 4.2	-16-53-21.9	1.29258	0.72601	-9.591	-3.9	12.9	0.828	1.4	338.4	342.9	131.0	33.9E	
JAN 8	21 36 43.7	-16 -5 -9.4	1.28144	0.72578	-9.692	-3.9	13.0	0.823	1.3	343.8	342.3	134.2	34.3E	
JAN 10	21 46 17.5	-15-15-15.0	1.27019	0.72554	-9.793	-3.9	13.1	0.818	1.2	349.2	341.7	137.3	34.7E	
JAN 12	21 55 45.8	-14-23-45.0	1.25882	0.72529	-9.894	-3.9	13.3	0.813	1.1	354.7	341.2	140.5	35.1E	
JAN 14	22 5 8.7	-13-30-45.6	1.24733	0.72504	-9.996	-3.9	13.4	0.808	1.1	0.1	340.6	143.7	35.5E	
JAN 16	22 14 26.3	-12-36-23.1	1.23572	0.72478	-10.099	-3.9	13.5	0.803	1.0	5.5	340.2	146.9	35.9E	
JAN 18	22 23 39.0	-11-40-43.8	1.22400	0.72452	-10.204	-3.9	13.6	0.797	0.9	10.8	339.7	150.1	36.3E	
JAN 20	22 32 46.8	-10-43-54.0	1.21215	0.72425	-10.312	-3.9	13.8	0.792	0.8	16.2	339.3	153.3	36.7E	
JAN 22	22 41 49.9	-9-46 -0.3	1.20018	0.72398	-10.422	-3.9	13.9	0.787	0.7	21.6	338.9	156.5	37.1E	
JAN 24	22 50 48.6	-8-47 -8.9	1.18807	0.72371	-10.532	-3.9	14.0	0.781	0.5	27.0	338.6	159.7	37.5E	
JAN 26	22 59 43.0	-7-47-26.1	1.17585	0.72344	-10.641	-3.9	14.2	0.775	0.4	32.4	338.3	162.9	37.8E	
JAN 28	23 8 33.5	-6-46-58.2	1.16349	0.72317	-10.749	-3.9	14.3	0.769	0.3	37.8	338.0	166.1	38.2E	
JAN 30	23 17 20.2	-5-45-51.2	1.15101	0.72289	-10.856	-4.0	14.5	0.764	0.2	43.1	337.8	169.3	38.6E	
FEB 1	23 26 3.4	-4-44-11.1	1.13841	0.72262	-10.960	-4.0	14.7	0.758	0.1	48.5	337.6	172.5	39.0E	
FEB 3	23 34 43.3	-3-42 -4.1	1.12569	0.72235	-11.063	-4.0	14.8	0.751	-0.1	53.8	337.4	175.7	39.3E	
FEB 5	23 43 20.3	-2-39-35.9	1.11286	0.72209	-11.164	-4.0	15.0	0.745	-0.2	59.2	337.3	178.9	39.7E	
FEB 7	23 51 54.5	-1-36-52.2	1.09990	0.72182	-11.264	-4.0	15.2	0.739	-0.4	64.5	337.2	182.2	40.0E	
FEB 9	0 0 26.3	0-33-58.9	1.08684	0.72155	-11.363	-4.0	15.4	0.732	-0.5	69.9	337.2	185.4	40.4E	
FEB 11	0 8 56.0	0 28 58.5	1.07366	0.72131	-11.461	-4.0	15.5	0.726	-0.6	75.2	337.1	188.6	40.7E	
FEB 13	0 17 23.9	1 31 54.6	1.06036	0.72107	-11.559	-4.0	15.7	0.719	-0.8	80.5	337.2	191.8	41.0E	
FEB 15	0 25 50.1	2 34 43.7	1.04695	0.72083	-11.659	-4.0	15.9	0.712	-0.9	85.8	337.2	195.0	41.4E	
FEB 17	0 34 15.1	3 37 20.3	1.03343	0.72059	-11.760	-4.0	16.1	0.705	-1.1	91.1	337.3	198.3	41.7E	
FEB 19	0 42 38.9	4 39 38.6	1.01978	0.72037	-11.862	-4.0	16.4	0.698	-1.2	96.4	337.4	201.5	42.0E	
FEB 21	0 51 1.9	5 41 33.2	1.00602	0.72016	-11.965	-4.0	16.6	0.691	-1.4	101.7	337.5	204.7	42.3E	
FEB 23	0 59 24.1	6 42 58.5	0.99214	0.71995	-12.068	-4.0	16.8	0.683	-1.5	107.0	337.7	208.0	42.6E	
FEB 25	1 7 45.7	7 43 48.9	0.97814	0.71976	-12.168	-4.1	17.1	0.676	-1.7	112.3	337.9	211.2	42.9E	
FEB 27	1 16 6.8	8 43 59.0	0.96403	0.71958	-12.266	-4.1	17.3	0.668	-1.8	117.5	338.1	214.4	43.2E	
FEB 29	1 24 27.7	9 43 23.3	0.94981	0.71941	-12.360	-4.1	17.6	0.660	-2.0	122.8	338.4	217.7	43.5E	
MAR 2	1 32 48.3	10 41 56.6	0.93548	0.71925	-12.452	-4.1	17.8	0.652	-2.2	128.0	338.7	220.9	43.7E	
MAR 4	1 41 8.8	11 39 33.5	0.92105	0.71910	-12.539	-4.1	18.1	0.644	-2.3	133.2	339.0	224.2	44.0E	
MAR 6	1 49 29.3	12 36 9.0	0.90651	0.71897	-12.623	-4.1	18.4	0.636	-2.5	138.4	339.3	227.4	44.2E	
MAR 8	1 57 49.8	13 31 38.0	0.89188	0.71885	-12.704	-4.1	18.7	0.627	-2.6	143.6	339.7	230.7	44.4E	
MAR 10	2 6 10.3	14 25 55.6	0.87717	0.71875	-12.781	-4.1	19.0	0.619	-2.8	148.8	340.1	233.9	44.7E	
MAR 12	2 14 30.9	15 18 57.2	0.86236	0.71866	-12.855	-4.1	19.4	0.610	-2.9	153.9	340.5	237.1	44.9E	
MAR 14	2 22 51.6	16 10 38.0	0.84747	0.71859	-12.928	-4.1	19.7	0.601	-3.1	159.1	341.0	240.4	45.1E	
MAR 16	2 31 12.2	17 0 53.5	0.83249	0.71853	-12.999	-4.2	20.0	0.592	-3.2	164.2	341.4	243.6	45.2E	
MAR 18	2 39 32.6	17 49 39.1	0.81744	0.71848	-13.070	-4.2	20.4	0.582	-3.4	169.3	341.9	246.9	45.4E	
MAR 20	2 47 52.7	18 36 50.4	0.80230	0.71845	-13.138	-4.2	20.8	0.573	-3.5	174.4	342.5	250.1	45.5E	
MAR 22	2 56 12.1	19 22 23.2	0.78709	0.71844	-13.204	-4.2	21.2	0.563	-3.7	179.5	343.0	253.4	45.7E	
MAR 24	3 4 30.6	20 6 13.5	0.77180	0.71844	-13.265	-4.2	21.6	0.553	-3.8	184.5	343.6	256.6	45.8E	
MAR 26	3 12 47.7	20 48 17.4	0.75645	0.71846	-13.320	-4.2	22.1	0.543	-3.9	189.6	344.2	259.9	45.9E	
MAR 28	3 21 3.0	21 28 31.2	0.74103	0.71849	-13.370	-4.2	22.5	0.532	-4.1	194.6	344.8	263.1	45.9E	
MAR 30	3 29 15.9	22 6 51.7	0.72556	0.71854	-13.412	-4.2	23.0	0.522	-4.2	199.5	345.4	266.4	46.0E	
APR 1	3 37 25.9	22 43 15.8	0.71005	0.71860	-13.446	-4.2	23.5	0.511	-4.3	204.5	346.0	269.6	46.0E	
APR 3	3 45 32.4	23 17 40.7	0.69450	0.71868	-13.472	-4.3	24.0	0.500	-4.4	209.4	346.7	272.9	46.0E	
APR 5	3 53 34.7	23 50 4.1	0.67893	0.71878	-13.489	-4.3	24.6	0.488	-4.5	214.3	347.3	276.1	45.9E	
APR 7	4 1 32.1	24 20 24.1	0.66334	0.71888	-13.496	-4.3	25.2	0.476	-4.6	219.1	348.0	279.4	45.8E	
APR 9	4 9 23.7	24 48 39.2	0.64775	0.71900	-13.495	-4.3	25.8	0.464	-4.7	224.0	348.6	282.6	45.7E	
APR 11	4 17 8.7	25 14 48.3	0.63217	0.71914	-13.484	-4.3	26.4	0.452	-4.8	228.7	349.3	285.8	45.6E	
APR 13	4 24 46.3	25 38 50.6	0.61661	0.71929	-13.466	-4.3	27.1	0.439	-4.9	233.5	350.0	289.1	45.4E	
APR 15	4 32 15.2	26 0 45.8	0.60107	0.71945	-13.438	-4.3	27.8	0.426	-5.0	238.2	350.6	292.3	45.2E	
APR 17	4 39 34.4	26 20 34.1	0.58556	0.71962	-13.401	-4.3	28.5	0.413	-5.1	242.8	351.3	295.6	44.9E	
APR 19	4 46 42.5	26 38 15.9	0.57011	0.71981	-13.353	-4.3	29.3	0.399	-5.1	247.4	352.0	298.8	44.6E	
APR 21	4 53 38.3	26 53 52.1	0.55472	0.72000	-13.291	-4.4	30.1	0.385	-5.2	251.9	352.6	302.0	44.2E	
APR 23	5 0 20.2	27 7 23.9	0.53941	0.72021	-13.214	-4.4	30.9	0.370	-5.2	256.4	353.2	305.3	43.8E	
APR 25	5 6 46.5	27 18 52.9	0.52420	0.72043	-13.119	-4.4	31.8	0.355	-5.2	260.8	353.8	308.5	43.3E	
APR 27	5 12 55.6	27 28 20.6	0.50911	0.72065	-13.004	-4.4	32.8	0.340	-5.3	265.2	354.4	311.7	42.7E	
APR 29	5 18 45.5	27 35 49.0	0.49417	0.72088	-12.866	-4.4	33.8	0.324	-5.3	269.4	355.0	315.0	42.1E	
MAY 1	5 24 14.6	27 41 20.1	0.47940	0.72112	-12.704	-4.4	34.8	0.308	-5.2	273.6	355.5	318.2	41.4E	
MAY 3	5 29 20.6	27 44 55.9	0.46483	0.72137	-12.515	-4.4	35.9	0.291	-5.2	277.7	356.0	321.4	40.6E	
MAY 5	5 34 1.8	27 46 38.2	0.45050	0.72163	-12.295	-4.4	37.0	0.274	-5.2	281.7	356.4	324.6	39.7E	
MAY 7	5 38 15.9	27 46 28.8	0.43644	0.72189	-12.044	-4.4	38.2	0.257	-5.1	285.6	356.8	327.8	38.7E	
MAY 9	5 42 0.8	27 44 29.0	0.42269	0.72215	-11.759	-4.4	39.5	0.239	-5.0	289.4	357.2	331.1	37.6E	
MAY 11	5 45 14.5	27 40 39.8	0.40928	0.72242	-11.439	-4.4	40.8	0.220	-5.0	293.1	357.5	334.3	36.4E	
MAY 13	5 47 54.7	27 35 1.3	0.39627	0.72269	-11.080	-4.4	42.1	0.202	-4.8	296.6	357.8	337.5	35.0E	
MAY 15	5 5													

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JUL 2	4 43 26.0	18 0 1.6		0.35293	0.72800	9.349	-4.3	47.3	0.131	3.3	355.0	351.7	57.1	28.9W
JUL 4	4 43 45.1	17 50 42.6		0.36405	0.72808	9.885	-4.3	45.8	0.150	3.5	358.1	351.7	60.2	30.8W
JUL 6	4 44 40.7	17 44 19.8		0.37574	0.72814	10.364	-4.3	44.4	0.169	3.6	1.2	351.8	63.4	32.5W
JUL 8	4 46 11.1	17 40 40.4		0.38797	0.72819	10.790	-4.3	43.0	0.188	3.7	4.5	351.9	66.5	34.0W
JUL 10	4 48 14.6	17 39 30.1		0.40065	0.72822	11.167	-4.4	41.7	0.206	3.8	8.0	352.1	69.7	35.4W
JUL 12	4 50 49.3	17 40 33.4		0.41375	0.72824	11.501	-4.4	40.3	0.224	3.9	11.6	352.3	72.9	36.7W
JUL 14	4 53 53.1	17 43 34.2		0.42720	0.72824	11.796	-4.4	39.1	0.242	3.9	15.2	352.6	76.0	37.9W
JUL 16	4 57 24.3	17 48 16.3		0.44098	0.72823	12.057	-4.4	37.8	0.260	4.0	19.1	353.0	79.2	38.9W
JUL 18	5 1 21.0	17 54 23.9		0.45505	0.72820	12.288	-4.4	36.7	0.277	4.0	23.0	353.3	82.3	39.9W
JUL 20	5 5 41.6	18 1 41.3		0.46936	0.72816	12.492	-4.4	35.6	0.294	4.0	27.0	353.7	85.5	40.7W
JUL 22	5 10 24.6	18 9 53.5		0.48390	0.72810	12.672	-4.4	34.5	0.310	4.0	31.1	354.2	88.7	41.5W
JUL 24	5 15 28.6	18 18 46.3		0.49863	0.72803	12.831	-4.4	33.5	0.326	3.9	35.2	354.7	91.8	42.2W
JUL 26	5 20 52.2	18 28 5.9		0.51353	0.72794	12.970	-4.3	32.5	0.341	3.9	39.5	355.2	95.0	42.8W
JUL 28	5 26 34.2	18 37 39.5		0.52858	0.72784	13.092	-4.3	31.6	0.356	3.8	43.8	355.7	98.2	43.3W
JUL 30	5 32 33.6	18 47 14.7		0.54377	0.72772	13.195	-4.3	30.7	0.370	3.8	48.2	356.3	101.3	43.8W
AUG 1	5 38 49.3	18 56 40.0		0.55906	0.72759	13.282	-4.3	29.9	0.384	3.7	52.7	356.9	104.5	44.2W
AUG 3	5 45 20.3	19 5 44.1		0.57444	0.72745	13.351	-4.3	29.1	0.398	3.6	57.2	357.5	107.7	44.6W
AUG 5	5 52 5.7	19 14 16.7		0.58990	0.72730	13.405	-4.3	28.3	0.411	3.5	61.7	358.2	110.8	44.9W
AUG 7	5 59 4.5	19 22 8.1		0.60541	0.72713	13.446	-4.3	27.6	0.424	3.5	66.4	358.9	114.0	45.1W
AUG 9	6 6 15.7	19 29 9.5		0.62096	0.72695	13.474	-4.3	26.9	0.437	3.4	71.0	359.6	117.2	45.3W
AUG 11	6 13 38.6	19 35 12.3		0.63653	0.72676	13.493	-4.3	26.2	0.449	3.3	75.7	0.3	120.3	45.5W
AUG 13	6 21 12.2	19 40 8.9		0.65212	0.72656	13.503	-4.2	25.6	0.461	3.2	80.5	1.0	123.5	45.6W
AUG 15	6 28 55.8	19 43 52.0		0.66772	0.72635	13.506	-4.2	25.0	0.473	3.1	85.2	1.8	126.7	45.7W
AUG 17	6 36 48.7	19 46 14.9		0.68332	0.72613	13.502	-4.2	24.4	0.484	2.9	90.1	2.5	129.9	45.8W
AUG 19	6 44 50.1	19 47 11.7		0.69891	0.72590	13.492	-4.2	23.9	0.496	2.8	94.9	3.3	133.0	45.8W
AUG 21	6 52 59.4	19 46 36.8		0.71449	0.72566	13.478	-4.2	23.4	0.507	2.7	99.8	4.1	136.2	45.8W
AUG 23	7 1 15.9	19 44 25.3		0.73005	0.72542	13.460	-4.2	22.9	0.517	2.6	104.7	4.9	139.4	45.8W
AUG 25	7 9 39.1	19 40 32.7		0.74559	0.72517	13.438	-4.2	22.4	0.528	2.5	109.6	5.7	142.6	45.8W
AUG 27	7 18 8.3	19 34 55.0		0.76109	0.72491	13.410	-4.2	21.9	0.538	2.4	114.6	6.5	145.8	45.7W
AUG 29	7 26 43.2	19 27 28.8		0.77656	0.72465	13.377	-4.1	21.5	0.548	2.3	119.6	7.3	149.0	45.6W
AUG 31	7 35 23.0	19 18 11.0		0.79199	0.72438	13.337	-4.1	21.1	0.558	2.1	124.6	8.1	152.2	45.5W
SEP 2	7 44 7.4	19 6 59.2		0.80737	0.72411	13.290	-4.1	20.7	0.568	2.0	129.6	8.8	155.4	45.3W
SEP 4	7 52 55.7	18 53 51.5		0.82269	0.72384	13.237	-4.1	20.3	0.577	1.9	134.7	9.6	158.6	45.2W
SEP 6	8 1 47.5	18 38 46.7		0.83795	0.72356	13.178	-4.1	19.9	0.586	1.8	139.8	10.4	161.8	45.0W
SEP 8	8 10 42.3	18 21 44.0		0.85314	0.72329	13.116	-4.1	19.6	0.596	1.7	144.8	11.2	165.0	44.8W
SEP 10	8 19 39.5	18 2 43.0		0.86825	0.72301	13.049	-4.1	19.2	0.605	1.5	150.0	11.9	168.2	44.6W
SEP 12	8 28 38.7	17 41 43.9		0.88328	0.72274	12.980	-4.1	18.9	0.613	1.4	155.1	12.7	171.4	44.4W
SEP 14	8 37 39.4	17 18 47.1		0.89823	0.72247	12.908	-4.1	18.6	0.622	1.3	160.2	13.4	174.6	44.1W
SEP 16	8 46 41.4	16 53 53.6		0.91310	0.72220	12.835	-4.1	18.3	0.631	1.2	165.4	14.1	177.8	43.9W
SEP 18	8 55 44.2	16 27 4.6		0.92788	0.72193	12.761	-4.1	18.0	0.639	1.1	170.6	14.8	181.0	43.6W
SEP 20	9 4 47.5	15 58 21.8		0.94258	0.72167	12.685	-4.0	17.7	0.647	1.0	175.7	15.5	184.2	43.4W
SEP 22	9 13 51.2	15 27 47.3		0.95719	0.72141	12.609	-4.0	17.4	0.655	0.9	180.9	16.2	187.5	43.1W
SEP 24	9 22 54.8	14 55 23.3		0.97171	0.72116	12.532	-4.0	17.2	0.663	0.8	186.2	16.8	190.7	42.8W
SEP 26	9 31 58.3	14 21 12.3		0.98614	0.72092	12.452	-4.0	16.9	0.671	0.7	191.4	17.4	193.9	42.5W
SEP 28	9 41 1.6	13 45 17.1		1.00048	0.72068	12.369	-4.0	16.7	0.679	0.6	196.6	18.0	197.1	42.2W
SEP 30	9 50 4.4	13 7 40.7		1.01471	0.72045	12.281	-4.0	16.4	0.687	0.5	201.9	18.5	200.4	41.9W
OCT 2	9 59 6.8	12 28 26.8		1.02885	0.72023	12.189	-4.0	16.2	0.694	0.4	207.1	19.0	203.6	41.5W
OCT 4	10 8 8.5	11 47 39.0		1.04287	0.72002	12.093	-4.0	16.0	0.702	0.3	212.4	19.5	206.8	41.2W
OCT 6	10 17 9.6	11 5 21.4		1.05678	0.71982	11.994	-4.0	15.8	0.709	0.2	217.7	20.0	210.1	40.9W
OCT 8	10 26 9.9	10 21 38.4		1.07058	0.71964	11.893	-4.0	15.6	0.716	0.2	223.0	20.4	213.3	40.5W
OCT 10	10 35 9.5	9 36 34.2		1.08426	0.71946	11.789	-4.0	15.4	0.723	0.1	228.3	20.8	216.5	40.2W
OCT 12	10 44 8.2	8 50 13.5		1.09781	0.71929	11.683	-4.0	15.2	0.730	0.0	233.6	21.2	219.8	39.8W
OCT 14	10 53 6.3	8 2 41.0		1.11125	0.71914	11.576	-4.0	15.0	0.737	-0.1	238.9	21.5	223.0	39.4W
OCT 16	11 2 3.7	7 14 1.5		1.12456	0.71900	11.469	-4.0	14.8	0.744	-0.1	244.2	21.8	226.3	39.0W
OCT 18	11 11 0.5	6 24 20.0		1.13774	0.71888	11.363	-4.0	14.7	0.750	-0.2	249.5	22.0	229.5	38.7W
OCT 20	11 19 56.8	5 33 41.4		1.15081	0.71877	11.257	-3.9	14.5	0.757	-0.2	254.9	22.3	232.7	38.3W
OCT 22	11 28 52.8	4 42 11.1		1.16375	0.71867	11.151	-3.9	14.3	0.763	-0.3	260.2	22.4	236.0	37.9W
OCT 24	11 37 48.6	3 49 53.9		1.17657	0.71859	11.045	-3.9	14.2	0.770	-0.3	265.6	22.6	239.2	37.5W
OCT 26	11 46 44.4	2 56 55.0		1.18926	0.71852	10.936	-3.9	14.0	0.776	-0.4	270.9	22.7	242.5	37.1W
OCT 28	11 55 40.5	2 3 19.7		1.20183	0.71847	10.826	-3.9	13.9	0.782	-0.4	276.3	22.8	245.7	36.7W
OCT 30	12 4 37.1	1 9 13.4		1.21427	0.71843	10.712	-3.9	13.7	0.788	-0.5	281.7	22.8	249.0	36.3W
NOV 1	12 13 34.4	0 14 41.6		1.22658	0.71841	10.595	-3.9	13.6	0.794	-0.5	287.1	22.8	252.2	35.9W
NOV 3	12 22 32.6	0 40 9.9		1.23875	0.71841	10.475	-3.9	13.5	0.800	-0.5	292.4	22.8	255.5	35.4W
NOV 5	12 31 32.0	-1 35 15.4		1.25078	0.71842	10.353	-3.9	13.3	0.805	-0.5	297.8	22.8	258.7	35.0W
NOV 7	12 40 32.6	-2 30 29.0		1.26267	0.71845	10.229	-3.9	13.2	0.811	-0.6	303.2	22.6	262.0	34.6W
NOV 9	12 49 34.9	-3 25 45.0		1.27441	0.71849	10.103	-3.9	13.1	0.817	-0.6	308.6	22.5	265.2	34.2W
NOV 11	12 58 38.9	-4 20 57.2		1.28601	0.71854	9.976	-3.9	13.0	0.822	-0.6	314.0	22.3	268.5	33.7W
NOV 13	13 7 45.0	-5 15 59.7		1.29746	0.71862	9.849	-3.9	12.9	0.827	-0.6	319.4	22.1	271.7	33.3W
NOV 15	13 16 53.4	-6 10 46.5		1.30876	0.71870	9.723	-3.9	12.8	0.833	-0.6	324.9	21.9	275.0	32.9W
NOV 17	13 26 4.3	-7 5 11.3		1.31992	0.71881	9.599	-3.9	12.6	0.838	-0.6	330.3	21.6	278.2	32.4W
NOV 19	13 35 17.9	-7 59 7.9		1.33094	0.71892	9.476	-3.9	12.5	0.843	-0.6	335.7	21.2	281.5	32.0W
NOV 21	13 44 34.5	-8 52 30.4		1.34181	0.71905	9.354	-3.9	12.4	0.848	-0.6	341.1	20.9	284.7	31.5W
NOV 23	13 53 54.3	-9 45 12.6		1.35255	0.71919	9.231	-3.9	12.3	0.853	-0.6	346.5	20.5	287.9	31.1W
NOV 25	14 3 17.7	-10 37 8.4		1.36314	0.71935	9.108	-3.9	12.2	0.857	-0.6	352.0	20.0	291.2	30.7W
NOV 27	14 12 44.9	-11 28 11.4		1.37359	0.71952	8.983	-3.9	12.1	0.862	-0.6	357.4	19.6	294.4	30.2W
NOV 29	14 22 16.0	-12 18 15.5		1.38389	0.71970	8.856	-3.9	12.1	0.867	-0.5	2.8	19.0	297.7	29.8W
DEC 1	14 31 51.2	-13 7 14.2		1.39405	0.71989	8.728	-3.9	12.0	0.871	-0.5	8.3	18.5	300.9	29.3W
DEC 3	14 41 30.7	-13 55 1.0		1.40405	0.72010	8.597	-3.9	11.9	0.875	-0.5	13.7	17.9	304.1	28.9W
DEC 5	14 51 14.8	-1												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	17 15 25.0	-22-18	-4.0	1.53590	0.72393	6.641	-3.8	10.9	0.931	0.1	95.6	5.3	352.4	21.9W
JAN 4	17 26 11.8	-22-33	-12.7	1.54350	0.72421	6.508	-3.8	10.8	0.934	0.1	101.0	4.3	355.6	21.5W
JAN 6	17 37 0.9	-22-45	-39.1	1.55094	0.72447	6.375	-3.8	10.8	0.937	0.1	106.5	3.3	358.8	21.0W
JAN 8	17 47 52.0	-22-55	-20.6	1.55822	0.72474	6.240	-3.8	10.7	0.940	0.2	112.0	2.2	2.0	20.5W
JAN 10	17 58 44.6	-23 -2	-15.0	1.56535	0.72500	6.105	-3.8	10.7	0.943	0.2	117.4	1.2	5.1	20.1W
JAN 12	18 9 38.0	-23 -6	-20.9	1.57233	0.72525	5.972	-3.8	10.6	0.945	0.3	122.9	0.1	8.3	19.6W
JAN 14	18 20 32.0	-23 -7	-37.0	1.57915	0.72550	5.841	-3.8	10.6	0.948	0.3	128.4	359.1	11.5	19.1W
JAN 16	18 31 25.9	-23 -6	-2.7	1.58582	0.72575	5.712	-3.8	10.5	0.951	0.3	133.8	358.0	14.7	18.7W
JAN 18	18 42 19.3	-23 -1	-38.2	1.59235	0.72598	5.585	-3.8	10.5	0.953	0.4	139.3	357.0	17.9	18.2W
JAN 20	18 53 11.8	-22-54	-23.8	1.59873	0.72621	5.460	-3.8	10.4	0.955	0.4	144.8	355.9	21.1	17.7W
JAN 22	19 4 2.9	-22-44	-20.7	1.60496	0.72642	5.334	-3.8	10.4	0.958	0.4	150.2	354.9	24.2	17.3W
JAN 24	19 14 52.2	-22-31	-30.5	1.61105	0.72663	5.209	-3.8	10.4	0.960	0.5	155.7	353.9	27.4	16.8W
JAN 26	19 25 39.2	-22-15	-55.1	1.61700	0.72683	5.083	-3.8	10.3	0.962	0.5	161.2	352.9	30.6	16.3W
JAN 28	19 36 23.6	-21-57	-36.9	1.62279	0.72702	4.956	-3.8	10.3	0.965	0.5	166.7	351.9	33.8	15.9W
JAN 30	19 47 4.9	-21-35	-39.0	1.62844	0.72719	4.827	-3.8	10.2	0.967	0.6	172.1	350.9	36.9	15.4W
FEB 1	19 57 42.9	-21-13	-4.6	1.63395	0.72735	4.697	-3.8	10.2	0.969	0.6	177.6	349.9	40.1	14.9W
FEB 3	20 8 17.3	-20-46	-57.6	1.63930	0.72750	4.564	-3.8	10.2	0.971	0.6	183.1	349.0	43.3	14.4W
FEB 5	20 18 47.8	-20-18	-22.1	1.64449	0.72764	4.430	-3.8	10.1	0.973	0.6	188.5	348.1	46.4	14.0W
FEB 7	20 29 14.1	-19-47	-22.7	1.64953	0.72777	4.294	-3.8	10.1	0.974	0.6	194.0	347.3	49.6	13.5W
FEB 9	20 39 36.1	-19-14	-4.2	1.65441	0.72788	4.157	-3.8	10.1	0.976	0.7	199.5	346.4	52.8	13.0W
FEB 11	20 49 53.4	-18-38	-31.6	1.65913	0.72797	4.021	-3.8	10.1	0.978	0.7	204.9	345.6	55.9	12.5W
FEB 13	21 0 6.1	-18 0	-50.1	1.66370	0.72806	3.887	-3.8	10.0	0.979	0.7	210.4	344.8	59.1	12.1W
FEB 15	21 10 14.1	-17-21	-5.2	1.66811	0.72812	3.755	-3.8	10.0	0.981	0.7	215.9	344.1	62.3	11.6W
FEB 17	21 20 17.3	-16-39	-22.4	1.67238	0.72818	3.623	-3.8	10.0	0.983	0.7	221.3	343.4	65.4	11.1W
FEB 19	21 30 15.8	-15-55	-47.4	1.67648	0.72821	3.491	-3.8	10.0	0.984	0.7	226.8	342.7	68.6	10.6W
FEB 21	21 40 9.6	-15-10	-26.0	1.68044	0.72824	3.360	-3.8	9.9	0.985	0.7	232.3	342.1	71.7	10.2W
FEB 23	21 49 58.8	-14-23	-24.0	1.68425	0.72825	3.227	-3.8	9.9	0.987	0.7	237.7	341.5	74.9	9.7W
FEB 25	21 59 43.5	-13-34	-47.4	1.68790	0.72824	3.093	-3.8	9.9	0.988	0.7	243.2	340.9	78.1	9.2W
FEB 27	22 9 23.9	-12-44	-41.9	1.69139	0.72822	2.957	-3.8	9.9	0.989	0.7	248.6	340.4	81.2	8.7W
MAR 1	22 19 0.2	-11-53	-13.6	1.69473	0.72818	2.819	-3.8	9.8	0.990	0.7	254.1	339.9	84.4	8.3W
MAR 3	22 28 32.6	-11 0	-28.4	1.69790	0.72813	2.678	-3.8	9.8	0.991	0.7	259.6	339.5	87.6	7.8W
MAR 5	22 38 1.2	-10 -6	-32.4	1.70091	0.72806	2.533	-3.8	9.8	0.992	0.6	265.0	339.1	90.7	7.3W
MAR 7	22 47 26.4	-9-11	-31.6	1.70375	0.72798	2.385	-3.8	9.8	0.993	0.6	270.5	338.7	93.9	6.8W
MAR 9	22 56 48.2	-8-15	-32.3	1.70642	0.72788	2.235	-3.8	9.8	0.994	0.6	275.9	338.4	97.0	6.3W
MAR 11	23 6 7.1	-7-18	-40.3	1.70892	0.72777	2.083	-3.8	9.8	0.995	0.6	281.4	338.1	100.2	5.9W
MAR 13	23 15 23.2	-6-21	-1.7	1.71124	0.72765	1.932	-3.8	9.8	0.996	0.5	286.8	337.9	103.4	5.4W
MAR 15	23 24 36.8	-5-22	-42.5	1.71338	0.72751	1.781	-3.8	9.7	0.997	0.5	292.3	337.6	106.5	4.9W
MAR 17	23 33 48.3	-4-23	-48.4	1.71535	0.72736	1.630	-3.8	9.7	0.997	0.5	297.8	337.5	109.7	4.4W
MAR 19	23 42 57.9	-3-24	-25.6	1.71715	0.72720	1.478	-3.8	9.7	0.998	0.4	303.2	337.3	112.9	4.0W
MAR 21	23 52 6.0	-2-24	-39.6	1.71877	0.72702	1.326	-3.8	9.7	0.998	0.4	308.7	337.2	116.0	3.5W
MAR 23	0 12 9.9	-1-24	-36.4	1.72021	0.72684	1.174	-3.8	9.7	0.999	0.4	314.1	337.2	119.2	3.0W
MAR 25	0 10 18.9	0-24	-21.6	1.72148	0.72664	1.019	-3.8	9.7	0.999	0.3	319.6	337.1	122.4	2.6W
MAR 27	0 19 24.5	0 35	59.1	1.72257	0.72643	0.863	-3.8	9.7	0.999	0.3	325.0	337.2	125.6	2.2W
MAR 29	0 28 29.9	1 36	20.0	1.72347	0.72622	0.704	-3.8	9.7	1.000	0.2	330.5	337.2	128.7	1.8W
MAR 31	0 37 35.5	2 36	35.4	1.72419	0.72599	0.542	-3.8	9.7	1.000	0.2	335.9	337.3	131.9	1.5W
APR 2	0 46 41.7	3 36	39.5	1.72472	0.72576	0.376	-3.8	9.7	1.000	0.1	341.3	337.4	135.1	1.3E
APR 4	0 55 48.7	4 36	26.4	1.72506	0.72551	0.205	-3.8	9.7	1.000	0.1	346.8	337.6	138.3	1.3E
APR 6	1 4 57.0	5 35	50.4	1.72519	0.72527	0.031	-3.8	9.7	1.000	0.0	352.2	337.8	141.5	1.5E
APR 8	1 14 6.7	6 34	45.6	1.72513	0.72501	-0.146	-3.8	9.7	1.000	0.0	357.7	338.1	144.7	1.8E
APR 10	1 23 18.2	7 33	6.0	1.72486	0.72475	-0.324	-3.8	9.7	0.999	-0.1	3.1	338.3	147.9	2.2E
APR 12	1 32 31.9	8 30	45.9	1.72438	0.72449	-0.503	-3.8	9.7	0.999	-0.1	8.6	338.7	151.1	2.6E
APR 14	1 41 47.9	9 27	39.2	1.72370	0.72422	-0.682	-3.8	9.7	0.999	-0.2	14.0	339.0	154.2	3.1E
APR 16	1 51 6.6	10 23	40.0	1.72280	0.72395	-0.861	-3.8	9.7	0.998	-0.3	19.4	339.4	157.4	3.6E
APR 18	2 0 28.2	11 18	42.5	1.72171	0.72367	-1.041	-3.8	9.7	0.998	-0.3	24.9	339.8	160.6	4.1E
APR 20	2 9 52.9	12 12	40.6	1.72040	0.72340	-1.221	-3.8	9.7	0.997	-0.4	30.3	340.3	163.8	4.6E
APR 22	2 19 21.2	13 5	28.4	1.71889	0.72312	-1.401	-3.8	9.7	0.996	-0.4	35.7	340.8	167.1	5.1E
APR 24	2 28 53.1	13 57	0.2	1.71716	0.72285	-1.583	-3.8	9.7	0.995	-0.5	41.2	341.3	170.3	5.6E
APR 26	2 38 28.9	14 47	9.9	1.71523	0.72257	-1.767	-3.8	9.7	0.995	-0.6	46.6	341.9	173.5	6.1E
APR 28	2 48 8.7	15 35	51.7	1.71308	0.72230	-1.952	-3.8	9.7	0.994	-0.6	52.0	342.5	176.7	6.6E
APR 30	2 57 52.9	16 22	59.7	1.71072	0.72204	-2.141	-3.8	9.8	0.992	-0.7	57.5	343.2	179.9	7.1E
MAY 2	3 7 41.3	17 8	27.9	1.70813	0.72177	-2.333	-3.8	9.8	0.991	-0.7	62.9	343.8	183.1	7.6E
MAY 4	3 17 34.2	17 52	10.4	1.70533	0.72151	-2.529	-3.8	9.8	0.990	-0.8	68.3	344.5	186.3	8.2E
MAY 6	3 27 31.6	18 34	1.5	1.70229	0.72126	-2.728	-3.8	9.8	0.989	-0.9	73.8	345.3	189.6	8.7E
MAY 8	3 37 33.6	19 13	55.3	1.69902	0.72101	-2.928	-3.8	9.9	0.987	-0.9	79.2	346.1	192.8	9.2E
MAY 10	3 47 39.9	19 51	46.3	1.69553	0.72077	-3.129	-3.8	9.8	0.986	-1.0	84.6	346.9	196.0	9.7E
MAY 12	3 57 50.7	20 27	29.0	1.69180	0.72054	-3.329	-3.8	9.9	0.984	-1.0	90.0	347.7	199.2	10.3E
MAY 14	4 8 5.7	21 0	58.1	1.68784	0.72032	-3.529	-3.8	9.9	0.982	-1.1	95.5	348.6	202.5	10.8E
MAY 16	4 18 24.8	21 32	8.4	1.68365	0.72011	-3.728	-3.8	9.9	0.981	-1.1	100.9	349.5	205.7	11.3E
MAY 18	4 28 47.8	22 0	55.0	1.67923	0.71990	-3.925	-3.8	9.9	0.979	-1.2	106.3	350.4	208.9	11.8E
MAY 20	4 39 14.5	22 27	13.5	1.67458	0.71971	-4.122	-3.8	10.0	0.977	-1.2	111.7	351.3	212.2	12.4E
MAY 22	4 49 44.7	22 50	59.5	1.66970	0.71953	-4.317	-3.8	10.0	0.975	-1.3	117.1	352.3	215.4	12.9E
MAY 24	5 0 18.1	23 12	9.2	1.66461	0.71936	-4.512	-3.8	10.0	0.972	-1.3	122.5	353.2	218.6	13.4E
MAY 26	5 10 54.3	23 30	39.0	1.65928	0.71920	-4.707	-3.8	10.1	0.970	-1.4	128.0	354.2	221.9	14.0E
MAY 28	5 21 33.0	23 46	25.8	1.65373	0.71906	-4.902	-3.8	10.1	0.968	-1.4	133.4	355.2	225.1	14.5E
MAY 30	5 32 13.8	23 59	26.8	1.64796	0.71893	-5.099	-3.8	10.1	0.965	-1.4	138.8	356.3	228.4	15.0E
JUN 1	5 42 56.3	24 9	39.5	1.64195	0.71881	-5.298	-3.8	10.2	0.963	-1.5	144.2	357.3	231.6	15.6E
JUN 3	5 53 39.9	24 17	2.2	1.63572	0.71871	-5.497	-3.8	10.2	0.960	-1.5	149.6	358.3	234.9	16.1E
JUN 5	6 4 24.3	24 21	33.6	1.62925	0.71862	-5.698	-3.8	10.2	0.957	-1.5	155.0	359.4	238.1	16.6E
JUN 7	6 15 9.0	24 23	12.8	1.62256	0.71855	-5.898	-3.8	10.3	0.954	-1.5				

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h m s)	(d ' ")			(a.u.)	(a.u.)	(km/s)		(")						
JUL 1	8 21 28.4	21 5 21.1	1.52509	0.71888	-8.106	-3.8	10.9	0.912	-1.5	225.3	12.1	280.3	23.5E		
JUL 3	8 31 35.5	20 32 4.8	1.51562	0.71900	-8.279	-3.8	11.0	0.908	-1.5	230.6	12.9	283.6	24.1E		
JUL 5	8 41 37.6	19 56 32.7	1.50596	0.71914	-8.450	-3.8	11.1	0.904	-1.5	236.0	13.7	286.8	24.6E		
JUL 7	8 51 34.6	19 18 50.0	1.49610	0.71929	-8.620	-3.8	11.2	0.900	-1.4	241.4	14.5	290.0	25.1E		
JUL 9	9 1 26.3	18 39 2.2	1.48605	0.71946	-8.786	-3.8	11.2	0.896	-1.4	246.8	15.3	293.3	25.6E		
JUL 11	9 11 12.8	17 57 14.5	1.47581	0.71963	-8.948	-3.8	11.3	0.891	-1.3	252.2	16.0	296.5	26.1E		
JUL 13	9 20 54.0	17 13 32.7	1.46538	0.71982	-9.107	-3.8	11.4	0.887	-1.3	257.6	16.6	299.8	26.7E		
JUL 15	9 30 29.9	16 28 2.3	1.45477	0.72002	-9.261	-3.8	11.5	0.882	-1.2	263.0	17.3	303.0	27.2E		
JUL 17	9 40 0.5	15 40 49.0	1.44399	0.72023	-9.411	-3.8	11.6	0.878	-1.2	268.3	17.9	306.2	27.7E		
JUL 19	9 49 26.1	14 51 58.7	1.43303	0.72045	-9.555	-3.8	11.6	0.873	-1.1	273.7	18.5	309.5	28.2E		
JUL 21	9 58 46.7	14 1 37.2	1.42192	0.72068	-9.694	-3.8	11.7	0.868	-1.0	279.1	19.0	312.7	28.7E		
JUL 23	10 8 2.4	13 9 50.0	1.41064	0.72092	-9.829	-3.8	11.8	0.863	-1.0	284.5	19.5	315.9	29.2E		
JUL 25	10 17 13.5	12 16 43.0	1.39921	0.72116	-9.961	-3.8	11.9	0.858	-0.9	289.8	20.0	319.1	29.7E		
JUL 27	10 26 20.2	11 22 21.6	1.38763	0.72141	-10.091	-3.8	12.0	0.853	-0.8	295.2	20.4	322.4	30.2E		
JUL 29	10 35 22.7	10 26 51.6	1.37590	0.72167	-10.221	-3.8	12.1	0.848	-0.7	300.6	20.8	325.6	30.7E		
JUL 31	10 44 21.4	9 30 18.6	1.36402	0.72193	-10.348	-3.8	12.2	0.843	-0.6	305.9	21.2	328.8	31.2E		
AUG 2	10 53 16.3	8 32 48.4	1.35199	0.72219	-10.475	-3.8	12.3	0.838	-0.5	311.3	21.5	332.0	31.6E		
AUG 4	11 2 7.8	7 34 26.7	1.33982	0.72246	-10.599	-3.8	12.5	0.833	-0.4	316.7	21.8	335.2	32.1E		
AUG 6	11 10 56.0	6 35 19.1	1.32751	0.72274	-10.720	-3.8	12.6	0.827	-0.3	322.0	22.0	338.4	32.6E		
AUG 8	11 19 41.4	5 35 31.3	1.31506	0.72301	-10.838	-3.8	12.7	0.822	-0.2	327.4	22.3	341.6	33.1E		
AUG 10	11 28 24.1	4 35 8.8	1.30247	0.72328	-10.953	-3.8	12.8	0.816	-0.1	332.7	22.4	344.8	33.5E		
AUG 12	11 37 4.4	3 34 17.1	1.28976	0.72356	-11.064	-3.8	12.9	0.811	0.0	338.1	22.6	348.1	34.0E		
AUG 14	11 45 42.7	2 33 1.7	1.27692	0.72383	-11.170	-3.9	13.1	0.805	0.1	343.4	22.7	351.3	34.5E		
AUG 16	11 54 19.2	1 31 28.1	1.26395	0.72411	-11.270	-3.9	13.2	0.800	0.2	348.8	22.8	354.5	34.9E		
AUG 18	12 2 54.1	0 29 41.7	1.25088	0.72438	-11.366	-3.9	13.3	0.794	0.3	354.1	22.8	357.6	35.4E		
AUG 20	12 11 27.9	0 32 12.1	1.23770	0.72464	-11.456	-3.9	13.5	0.788	0.4	359.4	22.9	0.8	35.8E		
AUG 22	12 20 0.9	-1 34 18.1	1.22442	0.72490	-11.543	-3.9	13.6	0.782	0.6	4.8	22.8	4.0	36.3E		
AUG 24	12 28 33.4	-2 36 1.2	1.21103	0.72516	-11.628	-3.9	13.8	0.776	0.7	10.1	22.8	7.2	36.7E		
AUG 26	12 37 5.7	-3 37 46.3	1.19755	0.72541	-11.712	-3.9	13.9	0.770	0.8	15.4	22.7	10.4	37.2E		
AUG 28	12 45 38.1	-4 39 18.0	1.18398	0.72566	-11.795	-3.9	14.1	0.764	0.9	20.8	22.6	13.6	37.6E		
AUG 30	12 54 11.0	-5 40 31.1	1.17031	0.72589	-11.876	-3.9	14.3	0.758	1.1	26.1	22.4	16.8	38.0E		
SEP 1	13 2 44.6	-6 41 20.1	1.15654	0.72612	-11.957	-3.9	14.4	0.752	1.2	31.4	22.2	20.0	38.4E		
SEP 3	13 11 19.2	-7 41 39.6	1.14268	0.72634	-12.036	-3.9	14.6	0.746	1.3	36.7	22.0	23.1	38.8E		
SEP 5	13 19 55.0	-8 41 24.4	1.12874	0.72655	-12.113	-3.9	14.8	0.739	1.5	42.0	21.8	26.3	39.2E		
SEP 7	13 28 32.3	-9 40 28.9	1.11470	0.72676	-12.188	-3.9	15.0	0.733	1.6	47.3	21.5	29.5	39.6E		
SEP 9	13 37 11.3	-10 38 47.7	1.10058	0.72695	-12.260	-3.9	15.2	0.727	1.7	52.6	21.2	32.7	40.0E		
SEP 11	13 45 52.3	-11 36 15.4	1.08638	0.72712	-12.329	-3.9	15.4	0.720	1.8	57.9	20.8	35.8	40.4E		
SEP 13	13 54 35.4	-12 32 46.4	1.07210	0.72729	-12.393	-3.9	15.6	0.714	2.0	63.2	20.5	39.0	40.8E		
SEP 15	14 3 20.7	-13 28 15.2	1.05775	0.72745	-12.453	-4.0	15.8	0.707	2.1	68.5	20.0	42.2	41.2E		
SEP 17	14 12 8.6	-14 22 36.2	1.04333	0.72759	-12.509	-4.0	16.0	0.700	2.2	73.8	19.6	45.3	41.6E		
SEP 19	14 20 59.0	-15 15 44.2	1.02886	0.72772	-12.560	-4.0	16.2	0.693	2.4	79.0	19.1	48.5	41.9E		
SEP 21	14 29 52.3	-16 7 33.8	1.01432	0.72783	-12.609	-4.0	16.5	0.686	2.5	84.3	18.6	51.7	42.3E		
SEP 23	14 38 48.5	-16 57 59.8	0.99973	0.72793	-12.657	-4.0	16.7	0.679	2.6	89.6	18.1	54.8	42.6E		
SEP 25	14 47 47.8	-17 46 57.0	0.98508	0.72802	-12.704	-4.0	16.9	0.672	2.7	94.8	17.5	58.0	43.0E		
SEP 27	14 56 50.1	-18 34 20.1	0.97038	0.72809	-12.750	-4.0	17.2	0.665	2.8	100.1	16.9	61.2	43.3E		
SEP 29	15 5 55.6	-19 20 3.9	0.95563	0.72815	-12.796	-4.0	17.5	0.658	3.0	105.3	16.3	64.3	43.6E		
OCT 1	15 15 4.1	-20 4 3.1	0.94082	0.72820	-12.841	-4.0	17.7	0.651	3.1	110.6	15.7	67.5	43.9E		
OCT 3	15 24 15.6	-20 46 12.8	0.92596	0.72822	-12.885	-4.1	18.0	0.643	3.2	115.8	15.0	70.6	44.2E		
OCT 5	15 33 29.9	-21 26 27.9	0.91105	0.72824	-12.927	-4.1	18.3	0.636	3.3	121.0	14.3	73.8	44.5E		
OCT 7	15 42 46.9	-22 4 43.8	0.89610	0.72824	-12.968	-4.1	18.6	0.628	3.4	126.2	13.5	77.0	44.8E		
OCT 9	15 52 6.4	-22 40 55.8	0.88110	0.72822	-13.007	-4.1	18.9	0.620	3.5	131.4	12.8	80.1	45.0E		
OCT 11	16 1 27.9	-23 14 59.5	0.86605	0.72819	-13.042	-4.1	19.3	0.612	3.6	136.6	12.0	83.3	45.3E		
OCT 13	16 10 51.1	-23 46 50.6	0.85097	0.72814	-13.072	-4.1	19.6	0.604	3.7	141.8	11.2	86.5	45.5E		
OCT 15	16 20 15.8	-24 16 25.3	0.83585	0.72808	-13.098	-4.1	20.0	0.596	3.7	147.0	10.4	89.6	45.8E		
OCT 17	16 29 41.4	-24 43 39.9	0.82071	0.72800	-13.119	-4.1	20.3	0.588	3.8	152.1	9.6	92.8	46.0E		
OCT 19	16 39 7.5	-25 8 31.6	0.80555	0.72791	-13.135	-4.2	20.7	0.580	3.9	157.3	8.7	95.9	46.2E		
OCT 21	16 48 33.7	-25 30 57.7	0.79037	0.72780	-13.149	-4.2	21.1	0.571	3.9	162.4	7.9	99.1	46.4E		
OCT 23	16 57 59.5	-25 50 55.9	0.77517	0.72768	-13.161	-4.2	21.5	0.562	4.0	167.5	7.0	102.3	46.5E		
OCT 25	17 7 24.1	-26 8 24.6	0.75996	0.72755	-13.171	-4.2	22.0	0.553	4.1	172.6	6.1	105.4	46.7E		
OCT 27	17 16 47.1	-26 23 22.2	0.74475	0.72741	-13.179	-4.2	22.4	0.544	4.1	177.7	5.2	108.6	46.8E		
OCT 29	17 26 7.7	-26 35 48.2	0.72952	0.72725	-13.185	-4.2	22.9	0.535	4.1	182.8	4.3	111.8	46.9E		
OCT 31	17 35 25.2	-26 45 42.1	0.71429	0.72708	-13.189	-4.3	23.4	0.526	4.1	187.8	3.4	114.9	47.0E		
NOV 2	17 44 38.8	-26 53 4.2	0.69905	0.72690	-13.190	-4.3	23.9	0.516	4.2	192.9	2.5	118.1	47.1E		
NOV 4	17 53 47.6	-26 57 55.6	0.68382	0.72670	-13.188	-4.3	24.4	0.506	4.2	197.9	1.7	121.3	47.1E		
NOV 6	18 2 50.7	-27 0 17.5	0.66859	0.72650	-13.182	-4.3	25.0	0.496	4.2	202.9	0.8	124.5	47.1E		
NOV 8	18 11 47.2	-27 0 12.0	0.65337	0.72629	-13.170	-4.3	25.5	0.486	4.2	207.8	359.9	127.6	47.1E		
NOV 10	18 20 36.1	-26 57 41.6	0.63816	0.72606	-13.151	-4.3	26.2	0.475	4.1	212.7	359.1	130.8	47.1E		
NOV 12	18 29 16.4	-26 52 49.3	0.62299	0.72583	-13.123	-4.4	26.8	0.464	4.1	217.6	358.2	134.0	47.0E		
NOV 14	18 37 47.1	-26 45 38.9	0.60785	0.72559	-13.087	-4.4	27.5	0.453	4.0	222.5	357.4	137.2	46.9E		
NOV 16	18 46 7.2	-26 36 14.4	0.59276	0.72535	-13.041	-4.4	28.2	0.442	4.0	227.3	356.6	140.4	46.8E		
NOV 18	18 54 15.8	-26 24 40.8	0.57773	0.72509	-12.986	-4.4	28.9	0.430	3.9	232.1	355.8	143.6	46.6E		
NOV 20	19 2 11.8	-26 11 3.4	0.56276	0.72484	-12.923	-4.4	29.7	0.418	3.8	236.9	355.0	146.8	46.4E		
NOV 22	19 9 54.2	-25 55 28.0	0.54787	0.72457	-12.852	-4.4	30.5	0.405	3.7	241.6	354.3	149.9	46.1E		
NOV 24	19 17 22.0	-25 38 0.9	0.53307	0.72431	-12.771	-4.5	31.3	0.393	3.6	246.3	353.6	153.1	45.8E		
NOV 26	19 24 33.9	-25 18 49.0	0.51837	0.72404	-12.680	-4.5	32.2	0.379	3.5	250.9	352.9	156.3	45.4E		
NOV 28	19 31 28.9	-24 57 59.5	0.50379	0.72376	-12.578	-4.5	33.1	0.366	3.4	255.5	352.3	159.5	45.0E		
NOV 30	19 38 5.6	-24 35 40.3	0.48932	0.72349	-12.463	-4.5	34.1	0.352	3.2	260.0	351.7	162.7	44.5E		
DEC 2	19 44 22.7	-24 11 59.8	0.47500	0.72322	-12.334	-4.5	35.1	0.337	3.0	264.4	351.1	165.9	43.9E		
DEC 4	19 50 18.8	-23 47 6.5	0.46083	0.72294	-12.189	-4.5	36.2	0.323	2.8	268.8	350.6	169.1	43.3E		
DEC 6	19 55 52.2	-23 21 9.8	0.44685	0.72267	-12.025	-4.5	37.3	0.307	2.6	273.1	350.1	172.4	42.6E		
DEC 8	20 1														

1998 VENUS

Geocentric Planetary Ephemeris

1998 VENUS

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	20 20	49.1	-17-24	-5.4	0.29713	0.71960	-6.732	-4.4	56.2	0.078	-2.1	318.5	348.0	214.3	23.1E
JAN 3	20 18	16.2	-17 -1-15.6		0.28978	0.71942	-5.978	-4.3	57.6	0.062	-2.6	320.9	348.2	217.5	20.6E
JAN 5	20 15	4.4	-16-39-56.1		0.28334	0.71926	-5.163	-4.3	58.9	0.047	-3.1	323.2	348.4	220.8	18.0E
JAN 7	20 11	16.6	-16-20-14.8		0.27787	0.71912	-4.289	-4.2	60.1	0.034	-3.6	325.3	348.7	224.0	15.4E
JAN 9	20 6	57.3	-16 -2-18.5		0.27345	0.71898	-3.360	-4.2	61.0	0.023	-4.1	327.3	349.1	227.2	12.6E
JAN 11	20 2	12.0	-15-46-13.2		0.27013	0.71886	-2.386	-4.1	61.8	0.014	-4.6	329.2	349.5	230.5	10.0E
JAN 13	19 57	7.7	-15-32 -3.5		0.26795	0.71876	-1.378	-4.0	62.3	0.008	-5.0	331.0	350.0	233.7	7.6E
JAN 15	19 51	52.4	-15-19-52.6		0.26695	0.71866	-0.351	-4.0	62.5	0.005	-5.5	332.8	350.4	237.0	6.0E
JAN 17	19 46	34.5	-15 -9-42.5		0.26714	0.71859	0.682	-4.0	62.5	0.005	-5.8	334.5	350.9	240.2	6.0W
JAN 19	19 41	22.5	-15 -1-33.6		0.26851	0.71853	1.704	-4.0	62.2	0.008	-6.2	336.2	351.4	243.5	7.5W
JAN 21	19 36	24.6	-14-55-24.7		0.27106	0.71848	2.704	-4.1	61.6	0.014	-6.4	338.0	351.8	246.7	9.8W
JAN 23	19 31	48.4	-14-51-12.9		0.27474	0.71845	3.667	-4.1	60.7	0.022	-6.7	339.9	352.2	250.0	12.5W
JAN 25	19 27	40.2	-14-48-53.1		0.27951	0.71843	4.585	-4.2	59.7	0.033	-6.8	341.8	352.6	253.2	15.2W
JAN 27	19 24	5.3	-14-48-18.5		0.28531	0.71843	5.450	-4.3	58.5	0.046	-6.9	343.9	352.9	256.5	17.8W
JAN 29	19 21	7.2	-14-49-20.4		0.29208	0.71845	6.258	-4.3	57.1	0.061	-7.0	346.2	353.2	259.7	20.4W
JAN 31	19 18	48.7	-14-51-48.2		0.29975	0.71848	7.009	-4.4	55.7	0.077	-7.0	348.6	353.4	263.0	22.9W
FEB 2	19 17	11.0	-14-55-30.3		0.30825	0.71853	7.702	-4.4	54.1	0.094	-7.0	351.1	353.6	266.2	25.2W
FEB 4	19 16	14.8	-15 0-13.7		0.31752	0.71859	8.340	-4.4	52.6	0.112	-7.0	353.9	353.7	269.5	27.3W
FEB 6	19 15	59.8	-15 -5-45.0		0.32749	0.71867	8.922	-4.5	51.0	0.130	-6.9	356.8	353.7	272.7	29.3W
FEB 8	19 16	25.1	-15-11-50.3		0.33810	0.71876	9.452	-4.5	49.4	0.148	-6.8	359.8	353.7	275.9	31.2W
FEB 10	19 17	29.4	-15-18-15.5		0.34930	0.71887	9.931	-4.5	47.8	0.167	-6.6	3.0	353.6	279.2	32.9W
FEB 12	19 19	11.0	-15-24-46.8		0.36103	0.71899	10.362	-4.5	46.2	0.185	-6.5	6.4	353.4	282.4	34.4W
FEB 14	19 21	28.0	-15-31-11.1		0.37322	0.71912	10.749	-4.5	44.7	0.203	-6.3	9.9	353.2	285.7	35.9W
FEB 16	19 24	18.4	-15-37-15.4		0.38584	0.71927	11.094	-4.5	43.3	0.221	-6.1	13.5	352.9	288.9	37.2W
FEB 18	19 27	39.9	-15-42-48.0		0.39884	0.71943	11.402	-4.5	41.8	0.239	-5.9	17.3	352.6	292.2	38.4W
FEB 20	19 31	30.4	-15-47-37.8		0.41217	0.71961	11.676	-4.5	40.5	0.256	-5.7	21.1	352.3	295.4	39.4W
FEB 22	19 35	47.8	-15-51-34.7		0.42580	0.71979	11.920	-4.5	39.2	0.272	-5.5	25.1	351.9	298.6	40.4W
FEB 24	19 40	29.8	-15-54-29.4		0.43970	0.71999	12.136	-4.5	38.0	0.289	-5.3	29.2	351.5	301.9	41.2W
FEB 26	19 45	34.5	-15-56-13.6		0.45383	0.72020	12.328	-4.5	36.8	0.304	-5.1	33.4	351.0	305.1	42.0W
FEB 28	19 50	60.0	-15-56-39.9		0.46817	0.72041	12.500	-4.5	35.6	0.320	-4.9	37.6	350.5	308.3	42.7W
MAR 2	19 56	44.4	-15 55-41.5		0.48270	0.72064	12.656	-4.5	34.6	0.335	-4.7	41.9	350.0	311.6	43.3W
MAR 4	20 2	46.1	-15-53-12.6		0.49740	0.72087	12.797	-4.5	33.6	0.349	-4.5	46.4	349.5	314.8	43.9W
MAR 6	20 9	3.5	-15-49 -8.0		0.51225	0.72111	12.924	-4.5	32.6	0.364	-4.2	50.8	348.9	318.0	44.4W
MAR 8	20 15	35.4	-15-43-23.1		0.52725	0.72136	13.038	-4.4	31.7	0.377	-4.0	55.3	348.4	321.2	44.8W
MAR 10	20 22	20.5	-15-35-54.2		0.54237	0.72162	13.139	-4.4	30.8	0.391	-3.8	59.9	347.8	324.5	45.2W
MAR 12	20 29	17.4	-15-26-38.1		0.55760	0.72188	13.228	-4.4	29.9	0.404	-3.6	64.6	347.2	327.7	45.5W
MAR 14	20 36	25.1	-15-15-32.2		0.57292	0.72214	13.305	-4.4	29.1	0.416	-3.4	69.2	346.7	330.9	45.7W
MAR 16	20 43	42.6	-15 -2-34.6		0.58833	0.72241	13.371	-4.4	28.4	0.429	-3.2	74.0	346.1	334.1	46.0W
MAR 18	20 51	8.8	-14-47-44.1		0.60381	0.72268	13.426	-4.4	27.6	0.441	-3.0	78.7	345.5	337.3	46.1W
MAR 20	20 58	42.7	-14-31 -0.2		0.61934	0.72295	13.471	-4.3	26.9	0.452	-2.8	83.5	344.9	340.5	46.3W
MAR 22	21 6	23.6	-14-12-22.9		0.63493	0.72323	13.507	-4.3	26.3	0.464	-2.6	88.4	344.4	343.7	46.4W
MAR 24	21 14	10.6	-13-51-52.8		0.65054	0.72350	13.534	-4.3	25.7	0.475	-2.4	93.3	343.8	346.9	46.5W
MAR 26	21 22	2.8	-13-29-31.1		0.66619	0.72378	13.553	-4.3	25.1	0.486	-2.2	98.2	343.3	350.1	46.5W
MAR 28	21 29	59.6	-13 -5-19.2		0.68185	0.72405	13.567	-4.3	24.5	0.496	-2.0	103.1	342.7	353.3	46.5W
MAR 30	21 38	0.3	-12-39-19.3		0.69753	0.72432	13.577	-4.3	23.9	0.507	-1.9	108.0	342.2	356.5	46.5W
APR 1	21 46	4.4	-12-11-33.5		0.71322	0.72458	13.584	-4.2	23.4	0.517	-1.7	113.0	341.7	359.7	46.4W
APR 3	21 54	11.4	-11-42 -4.4		0.72891	0.72485	13.588	-4.2	22.9	0.527	-1.5	118.0	341.3	2.9	46.4W
APR 5	22 2	20.8	-11-10-54.9		0.74461	0.72510	13.589	-4.2	22.4	0.537	-1.4	123.0	340.8	6.1	46.3W
APR 7	22 10	32.3	-10-38 -8.0		0.76030	0.72536	13.585	-4.2	22.0	0.546	-1.2	128.1	340.4	9.3	46.2W
APR 9	22 18	45.6	-10 -3-47.0		0.77599	0.72560	13.577	-4.2	21.5	0.556	-1.1	133.1	340.0	12.5	46.1W
APR 11	22 27	0.6	-9-27-55.2		0.79166	0.72584	13.565	-4.2	21.1	0.565	-0.9	138.2	339.6	15.7	45.9W
APR 13	22 35	16.8	-8-50-36.5		0.80732	0.72607	13.547	-4.1	20.7	0.574	-0.8	143.3	339.2	18.8	45.7W
APR 15	22 43	34.2	-8-11-54.6		0.82296	0.72629	13.524	-4.1	20.3	0.583	-0.7	148.4	338.9	22.0	45.6W
APR 17	22 51	52.7	-7-31-53.9		0.83856	0.72651	13.495	-4.1	19.9	0.592	-0.5	153.5	338.6	25.2	45.4W
APR 19	23 0	12.0	-6-50-38.7		0.85413	0.72671	13.461	-4.1	19.5	0.600	-0.4	158.7	338.3	28.4	45.1W
APR 21	23 8	32.2	-6 -8-13.4		0.86966	0.72690	13.422	-4.1	19.2	0.609	-0.3	163.8	338.0	31.5	44.9W
APR 23	23 16	53.0	-5-24-43.0		0.88514	0.72708	13.377	-4.1	18.9	0.617	-0.2	169.0	337.8	34.7	44.7W
APR 25	23 25	14.4	4 40-12.1		0.90056	0.72725	13.329	-4.1	18.5	0.625	-0.1	174.2	337.6	37.9	44.4W
APR 27	23 33	36.4	3 54-45.8		0.91593	0.72741	13.279	-4.0	18.2	0.633	0.0	179.3	337.5	41.1	44.2W
APR 29	23 41	59.1	-3 -8-29.0		0.93124	0.72755	13.227	-4.0	17.9	0.641	0.1	184.5	337.3	44.2	43.9W
MAY 1	23 50	22.3	2 21-26.7		0.94649	0.72768	13.174	-4.0	17.6	0.649	0.2	189.7	337.2	47.4	43.6W
MAY 3	23 58	46.3	-1 33-43.9		0.96167	0.72780	13.120	-4.0	17.4	0.657	0.3	194.9	337.2	50.6	43.3W
MAY 5	0 7	11.1	0 45-25.5		0.97680	0.72791	13.064	-4.0	17.1	0.664	0.3	200.1	337.2	53.7	43.0W
MAY 7	0 15	36.9	0 3 23.5		0.99185	0.72800	13.005	-4.0	16.8	0.672	0.4	205.4	337.2	56.9	42.7W
MAY 9	0 24	3.8	0 52-38.1		1.00684	0.72807	12.944	-4.0	16.6	0.679	0.5	210.6	337.2	60.0	42.3W
MAY 11	0 32	31.9	1 42-13.4		1.02176	0.72813	12.879	-4.0	16.3	0.686	0.5	215.8	337.3	63.2	42.0W
MAY 13	0 41	1.6	2 32 4.4		1.03659	0.72818	12.810	-4.0	16.1	0.693	0.6	221.1	337.4	66.4	41.7W
MAY 15	0 49	32.9	3 22 5.9		1.05135	0.72821	12.736	-3.9	15.9	0.700	0.6	226.3	337.5	69.5	41.3W
MAY 17	0 58	6.0	4 12-12.7		1.06601	0.72823	12.658	-3.9	15.7	0.707	0.7	231.6	337.7	72.7	40.9W
MAY 19	1 6	41.2	5 2 19.5		1.08059	0.72823	12.575	-3.9	15.4	0.714	0.7	236.8	337.9	75.9	40.6W
MAY 21	1 15	18.5	5 52-21.0		1.09506	0.72821	12.487	-3.9	15.2	0.721	0.7	242.1	338.1	79.0	40.2W
MAY 23	1 23	58.2	6 42-11.6		1.10943	0.72818	12.395	-3.9	15.0	0.728	0.8	247.4	338.4	82.2	39.8W
MAY 25	1 32	40.5	7 31-46.1		1.12370	0.72814	12.300	-3.9	14.9	0.734	0.8	252.6	338.7	85.3	39.4W
MAY 27	1 41	25.4	8 20-58.7		1.13785	0.72808	12.203	-3.9	14.7	0.741	0.8	257.9	339.0	88.5	39.0W
MAY 29	1 50	13.2	9 9-44.1		1.15189	0.72801	12.105	-3.9	14.5	0.747	0.8	263.2	339.4	91.7	38.6W
MAY 31	1 59	4.1	9 57-56.6		1.16581	0.72792	12.007	-3.9	14.3	0.754					

Date (0 DT)	RA [Mean] (h m s)			Dec (d ' ")			Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 2	4	29	39.8	20	20	29.9	1.37086	0.72488	10.049	-3.8	12.2	0.845	0.5	353.6	350.4	145.6	31.1W
JUL 4	4	39	41.2	20	45	30.3	1.38239	0.72462	9.907	-3.8	12.1	0.850	0.5	358.9	351.3	148.8	30.6W
JUL 6	4	49	46.5	21	8	22.3	1.39375	0.72436	9.764	-3.8	12.0	0.855	0.4	4.3	352.3	152.0	30.1W
JUL 8	4	59	55.6	21	29	1.6	1.40494	0.72409	9.619	-3.8	11.9	0.860	0.4	9.6	353.2	155.2	29.6W
JUL 10	5	10	8.1	21	47	24.5	1.41597	0.72382	9.472	-3.8	11.8	0.865	0.3	15.0	354.2	158.4	29.1W
JUL 12	5	20	23.9	22	3	27.1	1.42682	0.72354	9.322	-3.8	11.7	0.870	0.3	20.3	355.1	161.6	28.7W
JUL 14	5	30	42.7	22	17	6.0	1.43750	0.72327	9.168	-3.8	11.6	0.874	0.2	25.7	356.1	164.8	28.2W
JUL 16	5	41	4.1	22	28	18.1	1.44800	0.72300	9.009	-3.8	11.5	0.879	0.2	31.1	357.1	168.0	27.7W
JUL 18	5	51	27.9	22	37	0.8	1.45831	0.72272	8.847	-3.8	11.4	0.883	0.2	36.4	358.1	171.2	27.2W
JUL 20	6	1	53.5	22	43	11.7	1.46844	0.72245	8.681	-3.8	11.4	0.888	0.1	41.8	359.1	174.4	26.7W
JUL 22	6	12	20.8	22	46	49.0	1.47837	0.72218	8.512	-3.8	11.3	0.892	0.1	47.2	0.1	177.6	26.2W
JUL 24	6	22	49.1	22	47	51.3	1.48810	0.72192	8.343	-3.8	11.2	0.896	0.0	52.5	1.2	180.9	25.7W
JUL 26	6	33	18.0	22	46	17.3	1.49764	0.72166	8.173	-3.8	11.1	0.901	0.0	57.9	2.2	184.1	25.2W
JUL 28	6	43	47.3	22	42	6.5	1.50698	0.72140	8.002	-3.8	11.1	0.905	-0.1	63.3	3.2	187.3	24.7W
JUL 30	6	54	16.3	22	35	18.8	1.51613	0.72115	7.832	-3.8	11.0	0.909	-0.1	68.7	4.2	190.5	24.1W
AUG 1	7	4	44.8	22	25	54.3	1.52508	0.72091	7.662	-3.8	10.9	0.913	-0.1	74.1	5.2	193.7	23.6W
AUG 3	7	15	12.4	22	13	54.0	1.53383	0.72068	7.492	-3.8	10.9	0.917	-0.2	79.5	6.2	197.0	23.1W
AUG 5	7	25	38.6	21	59	18.9	1.54239	0.72045	7.321	-3.8	10.8	0.920	-0.2	84.9	7.1	200.2	22.6W
AUG 7	7	36	3.2	21	42	10.8	1.55074	0.72023	7.151	-3.8	10.8	0.924	-0.3	90.2	8.1	203.4	22.1W
AUG 9	7	46	25.8	21	22	31.5	1.55890	0.72002	6.979	-3.8	10.7	0.928	-0.3	95.6	9.0	206.7	21.6W
AUG 11	7	56	46.0	21	0	23.5	1.56687	0.71983	6.805	-3.8	10.7	0.931	-0.3	101.0	10.0	209.9	21.1W
AUG 13	8	7	3.7	20	35	49.4	1.57462	0.71964	6.628	-3.8	10.6	0.935	-0.4	106.4	10.9	213.1	20.5W
AUG 15	8	17	18.6	20	8	52.3	1.58218	0.71946	6.448	-3.8	10.5	0.938	-0.4	111.9	11.7	216.4	20.0W
AUG 17	8	27	30.5	19	39	35.7	1.58952	0.71930	6.265	-3.8	10.5	0.941	-0.4	117.3	12.6	219.6	19.5W
AUG 19	8	37	39.1	19	8	3.4	1.59665	0.71915	6.080	-3.8	10.5	0.945	-0.5	122.7	13.4	222.9	19.0W
AUG 21	8	47	44.2	18	34	19.6	1.60357	0.71901	5.894	-3.8	10.4	0.948	-0.5	128.1	14.2	226.1	18.5W
AUG 23	8	57	45.8	17	58	28.5	1.61027	0.71889	5.708	-3.8	10.4	0.951	-0.5	133.5	15.0	229.3	17.9W
AUG 25	9	7	43.6	17	20	34.7	1.61675	0.71878	5.523	-3.8	10.3	0.954	-0.5	138.9	15.7	232.6	17.4W
AUG 27	9	17	37.7	16	40	42.9	1.62303	0.71869	5.339	-3.8	10.3	0.956	-0.5	144.3	16.4	235.8	16.9W
AUG 29	9	27	28.0	15	58	58.1	1.62909	0.71861	5.156	-3.8	10.2	0.959	-0.5	149.8	17.1	239.1	16.4W
AUG 31	9	37	14.5	15	15	25.2	1.63494	0.71854	4.974	-3.8	10.2	0.962	-0.6	155.2	17.7	242.3	15.8W
SEP 2	9	46	57.3	14	30	9.6	1.64058	0.71849	4.794	-3.8	10.2	0.964	-0.6	160.6	18.3	245.6	15.3W
SEP 4	9	56	36.4	13	43	16.5	1.64602	0.71845	4.616	-3.8	10.1	0.967	-0.6	166.1	18.9	248.8	14.8W
SEP 6	10	6	11.9	12	54	51.4	1.65125	0.71844	4.438	-3.8	10.1	0.969	-0.6	171.5	19.4	252.1	14.3W
SEP 8	10	15	44.0	12	4	59.5	1.65627	0.71843	4.261	-3.8	10.1	0.972	-0.6	176.9	19.9	255.3	13.7W
SEP 10	10	25	12.9	11	13	46.4	1.66109	0.71844	4.083	-3.8	10.0	0.974	-0.6	182.4	20.4	258.6	13.2W
SEP 12	10	34	38.8	10	21	17.4	1.66570	0.71847	3.903	-3.8	10.0	0.976	-0.6	187.8	20.8	261.8	12.7W
SEP 14	10	44	1.8	9	27	38.4	1.67011	0.71851	3.721	-3.8	10.0	0.978	-0.6	193.2	21.1	265.1	12.2W
SEP 16	10	53	22.2	8	32	54.9	1.67430	0.71857	3.538	-3.8	10.0	0.980	-0.5	198.7	21.5	268.3	11.6W
SEP 18	11	2	40.2	7	37	12.9	1.67828	0.71864	3.355	-3.8	9.9	0.982	-0.5	204.1	21.8	271.6	11.1W
SEP 20	11	11	55.9	6	40	38.1	1.68205	0.71873	3.172	-3.8	9.9	0.983	-0.5	209.6	22.1	274.8	10.6W
SEP 22	11	21	9.8	5	43	16.4	1.68561	0.71883	2.990	-3.8	9.9	0.985	-0.5	215.0	22.3	278.0	10.1W
SEP 24	11	30	22.0	4	45	13.5	1.68896	0.71895	2.809	-3.8	9.9	0.986	-0.5	220.5	22.5	281.3	9.5W
SEP 26	11	39	32.8	3	46	35.2	1.69210	0.71908	2.631	-3.8	9.9	0.988	-0.5	225.9	22.6	284.5	9.0W
SEP 28	11	48	42.5	2	47	27.5	1.69504	0.71922	2.454	-3.8	9.8	0.989	-0.4	231.4	22.7	287.8	8.5W
SEP 30	11	57	51.5	1	47	56.2	1.69777	0.71938	2.281	-3.8	9.8	0.991	-0.4	236.8	22.8	291.0	8.0W
OCT 2	12	6	59.9	0	48	7.2	1.70031	0.71955	2.110	-3.8	9.8	0.992	-0.4	242.3	22.8	294.2	7.5W
OCT 4	12	16	8.2	0	11	53.6	1.70265	0.71973	1.942	-3.8	9.8	0.993	-0.3	247.7	22.8	297.5	6.9W
OCT 6	12	25	16.7	-1	12	-0.4	1.70480	0.71992	1.777	-3.8	9.8	0.994	-0.3	253.2	22.8	300.7	6.4W
OCT 8	12	34	25.7	-2	12	-7.4	1.70675	0.72013	1.612	-3.8	9.8	0.995	-0.3	258.7	22.7	304.0	5.9W
OCT 10	12	43	35.6	-3	12	-8.8	1.70852	0.72034	1.447	-3.8	9.8	0.996	-0.2	264.1	22.6	307.2	5.4W
OCT 12	12	52	46.8	-4	11	-58.7	1.71010	0.72056	1.281	-3.8	9.8	0.997	-0.2	269.6	22.4	310.4	4.9W
OCT 14	13	1	59.5	-5	11	-31.0	1.71148	0.72079	1.114	-3.8	9.8	0.997	-0.1	275.0	22.3	313.6	4.4W
OCT 16	13	11	14.1	-6	10	-39.6	1.71267	0.72103	0.947	-3.8	9.7	0.998	-0.1	280.5	22.0	316.9	3.9W
OCT 18	13	20	30.8	-7	9	-18.2	1.71367	0.72128	0.781	-3.8	9.7	0.998	0.0	286.0	21.7	320.1	3.4W
OCT 20	13	29	50.1	-8	7	-20.8	1.71448	0.72153	0.615	-3.8	9.7	0.999	0.0	291.4	21.4	323.3	2.9W
OCT 22	13	39	12.1	-9	4	-41.0	1.71509	0.72179	0.451	-3.8	9.7	0.999	0.1	296.9	21.1	326.5	2.4W
OCT 24	13	48	37.1	-10	1	-12.6	1.71552	0.72205	0.289	-3.8	9.7	0.999	0.1	302.4	20.7	329.8	1.9W
OCT 26	13	58	5.5	-10	56	-49.2	1.71576	0.72232	0.129	-3.8	9.7	1.000	0.2	307.8	20.3	333.0	1.5W
OCT 28	14	7	37.4	-11	51	-24.3	1.71582	0.72259	-0.029	-3.8	9.7	1.000	0.2	313.3	19.8	336.2	1.1W
OCT 30	14	17	13.2	-12	44	-51.7	1.71570	0.72286	-0.183	-3.8	9.7	1.000	0.3	318.8	19.3	339.4	0.9E
NOV 1	14	26	52.9	-13	37	-4.7	1.71540	0.72314	-0.333	-3.8	9.7	1.000	0.3	324.2	18.8	342.6	1.0E
NOV 3	14	36	37.0	-14	27	-57.0	1.71493	0.72341	-0.481	-3.8	9.7	1.000	0.4	329.7	18.2	345.8	1.3E
NOV 5	14	46	25.4	-15	17	-22.3	1.71429	0.72369	-0.626	-3.8	9.7	1.000	0.5	335.2	17.6	349.0	1.6E
NOV 7	14	56	18.6	-16	5	-14.3	1.71348	0.72396	-0.770	-3.8	9.7	0.999	0.5	340.7	16.9	352.2	2.1E
NOV 9	15	6	16.5	-16	51	-26.7	1.71251	0.72423	-0.914	-3.8	9.7	0.999	0.6	346.1	16.3	355.4	2.6E
NOV 11	15	16	19.2	-17	35	-53.0	1.71137	0.72450	-1.060	-3.8	9.8	0.999	0.6	351.6	15.5	358.6	3.0E
NOV 13	15	26	26.9	-18	18	-27.1	1.71006	0.72476	-1.205	-3.8	9.8	0.998	0.7	357.1	14.8	1.8	3.5E
NOV 15	15	36	39.6	-18	59	-2.5	1.70859	0.72502	-1.351	-3.8	9.8	0.998	0.7	2.5	14.0	5.0	4.0E
NOV 17	15	46	57.2	-19	37	-33.1	1.70694	0.72528	-1.497	-3.8	9.8	0.997	0.8	8.0	13.2	8.2	4.5E
NOV 19	15	57	19.7	-20	13	-53.1	1.70513	0.72552	-1.642	-3.8	9.8	0.996	0.8	13.5	12.3	11.4	5.0E
NOV 21	16	7	46.9	-20	47	-56.6	1.70315	0.72576	-1.786	-3.8	9.8	0.996	0.9	19.0	11.5	14.5	5.5E
NOV 23	16	18	18.7	-21	19	-38.0	1.70100	0.72600	-1.929	-3.8	9.8	0.995	0.9	24.4	10.6	17.7	

1999 VENUS

Geocentric Planetary Ephemeris

1999 VENUS

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
(h m s)	(d ° ')														
JAN 2	19 55 44.8	-22 -8 -0.1	1.62586	0.72820	-4.546	-3.8	10.3	0.966	1.4	133.9	350.1	81.1	15.6E		
JAN 4	20 6 22.1	-21-40-22.2	1.62054	0.72816	-4.668	-3.8	10.3	0.964	1.4	139.4	349.2	84.2	16.0E		
JAN 6	20 16 54.8	-21-10 -9.7	1.61507	0.72811	-4.791	-3.8	10.3	0.962	1.4	144.9	348.3	87.4	16.5E		
JAN 8	20 27 22.8	-20-37-27.4	1.60947	0.72804	-4.916	-3.8	10.4	0.959	1.4	150.3	347.4	90.5	17.0E		
JAN 10	20 37 45.9	-20 -2-20.4	1.60372	0.72796	-5.042	-3.8	10.4	0.957	1.3	155.8	346.6	93.7	17.4E		
JAN 12	20 48 4.0	-19-24-54.1	1.59782	0.72786	-5.171	-3.8	10.4	0.955	1.3	161.3	345.8	96.9	17.9E		
JAN 14	20 58 16.9	-18-45-14.1	1.59177	0.72775	-5.301	-3.8	10.5	0.952	1.3	166.7	345.0	100.0	18.4E		
JAN 16	21 8 24.6	-18 -3-26.3	1.58557	0.72762	-5.432	-3.8	10.5	0.950	1.2	172.2	344.2	103.2	18.8E		
JAN 18	21 18 27.0	-17-19-36.8	1.57922	0.72748	-5.566	-3.8	10.6	0.947	1.2	177.7	343.5	106.4	19.3E		
JAN 20	21 28 24.1	-16-33-51.5	1.57271	0.72733	-5.701	-3.8	10.6	0.945	1.2	183.1	342.9	109.5	19.8E		
JAN 22	21 38 16.0	-15-46-16.8	1.56605	0.72717	-5.836	-3.8	10.7	0.942	1.1	188.6	342.2	112.7	20.2E		
JAN 24	21 48 2.8	-14-56-58.9	1.55923	0.72699	-5.971	-3.8	10.7	0.939	1.1	194.0	341.6	115.9	20.7E		
JAN 26	21 57 44.4	-14 -6 -4.1	1.55226	0.72680	-6.104	-3.8	10.8	0.936	1.0	199.5	341.1	119.1	21.1E		
JAN 28	22 7 21.2	-13-13-38.9	1.54513	0.72661	-6.236	-3.8	10.8	0.933	1.0	205.0	340.5	122.2	21.6E		
JAN 30	22 16 53.2	-12-19-49.5	1.53785	0.72640	-6.367	-3.8	10.9	0.930	0.9	210.4	340.0	125.4	22.1E		
FEB 1	22 26 20.7	-11-24-42.3	1.53042	0.72618	-6.497	-3.8	10.9	0.927	0.8	215.9	339.6	128.6	22.5E		
FEB 3	22 35 43.9	-10-28-23.6	1.52284	0.72595	-6.627	-3.8	11.0	0.924	0.8	221.3	339.2	131.8	23.0E		
FEB 5	22 45 3.1	-9-30-59.4	1.51511	0.72572	-6.759	-3.8	11.0	0.921	0.7	226.8	338.8	134.9	23.4E		
FEB 7	22 54 18.5	-8-32-36.1	1.50723	0.72548	-6.892	-3.8	11.1	0.917	0.6	232.2	338.5	138.1	23.9E		
FEB 9	23 3 30.5	-7-33-19.5	1.49919	0.72523	-7.027	-3.8	11.1	0.914	0.6	237.7	338.2	141.3	24.3E		
FEB 11	23 12 39.4	-6-33-16.0	1.49099	0.72497	-7.165	-3.8	11.2	0.910	0.5	243.1	337.9	144.5	24.8E		
FEB 13	23 21 45.4	-5-32-31.6	1.48264	0.72471	-7.305	-3.8	11.3	0.907	0.4	248.5	337.7	147.7	25.2E		
FEB 15	23 30 48.8	-4-31-12.4	1.47412	0.72445	-7.448	-3.8	11.3	0.903	0.3	254.0	337.5	150.9	25.7E		
FEB 17	23 39 50.0	-3-29-24.5	1.46543	0.72418	-7.593	-3.8	11.4	0.899	0.2	259.4	337.4	154.1	26.2E		
FEB 19	23 48 49.3	-2-27-13.9	1.45658	0.72391	-7.739	-3.8	11.5	0.896	0.1	264.8	337.3	157.3	26.6E		
FEB 21	23 57 46.9	-1-24-46.8	1.44755	0.72364	-7.887	-3.8	11.5	0.892	0.0	270.3	337.2	160.5	27.0E		
FEB 23	0 6 43.2	0-22 -9.1	1.43836	0.72337	-8.033	-3.8	11.6	0.888	-0.1	275.7	337.2	163.7	27.5E		
FEB 25	0 15 38.5	0-40 33.3	1.42900	0.72309	-8.179	-3.8	11.7	0.884	-0.2	281.1	337.2	166.9	27.9E		
FEB 27	0 24 33.2	1 43 14.3	1.41946	0.72282	-8.323	-3.8	11.8	0.879	-0.3	286.5	337.2	170.1	28.4E		
MAR 1	0 33 27.4	2 45 47.9	1.40977	0.72255	-8.465	-3.8	11.8	0.875	-0.4	292.0	337.3	173.3	28.8E		
MAR 3	0 42 21.7	3 48 8.5	1.39991	0.72228	-8.608	-3.9	11.9	0.871	-0.5	297.4	337.4	176.5	29.3E		
MAR 5	0 51 16.2	4 50 10.3	1.38988	0.72201	-8.750	-3.9	12.0	0.866	-0.6	302.8	337.5	179.7	29.7E		
MAR 7	1 0 11.5	5 51 47.6	1.37969	0.72175	-8.893	-3.9	12.1	0.862	-0.7	308.2	337.7	183.0	30.2E		
MAR 9	1 9 7.7	6 52 54.6	1.36934	0.72149	-9.037	-3.9	12.2	0.857	-0.8	313.6	337.9	186.2	30.6E		
MAR 11	1 18 5.2	7 53 25.6	1.35882	0.72124	-9.181	-3.9	12.3	0.852	-0.9	319.0	338.2	189.4	31.0E		
MAR 13	1 27 4.3	8 53 15.0	1.34813	0.72100	-9.330	-3.9	12.4	0.847	-1.0	324.4	338.5	192.6	31.5E		
MAR 15	1 36 5.2	9 52 16.8	1.33726	0.72076	-9.479	-3.9	12.5	0.842	-1.1	329.8	338.8	195.8	31.9E		
MAR 17	1 45 8.3	10 50 25.3	1.32623	0.72053	-9.630	-3.9	12.6	0.837	-1.2	335.2	339.1	199.1	32.3E		
MAR 19	1 54 13.7	11 47 34.5	1.31502	0.72031	-9.783	-3.9	12.7	0.832	-1.3	340.6	339.5	202.3	32.8E		
MAR 21	2 3 21.7	12 43 38.7	1.30363	0.72009	-9.936	-3.9	12.8	0.826	-1.4	345.9	340.0	205.5	33.2E		
MAR 23	2 12 32.5	13 38 31.9	1.29206	0.71989	-10.089	-3.9	12.9	0.821	-1.5	351.3	340.4	208.8	33.6E		
MAR 25	2 21 46.2	14 32 8.3	1.28032	0.71970	-10.240	-3.9	13.0	0.816	-1.6	356.7	340.9	212.0	34.0E		
MAR 27	2 31 3.0	15 24 22.0	1.26841	0.71952	-10.388	-3.9	13.2	0.810	-1.7	2.1	341.5	215.2	34.5E		
MAR 29	2 40 22.9	16 15 7.1	1.25632	0.71936	-10.534	-3.9	13.3	0.804	-1.8	7.4	342.0	218.5	34.9E		
MAR 31	2 49 46.1	17 4 18.1	1.24407	0.71920	-10.678	-3.9	13.4	0.798	-1.9	12.8	342.6	221.7	35.3E		
APR 2	2 59 12.7	17 51 49.2	1.23166	0.71906	-10.819	-3.9	13.5	0.792	-2.0	18.1	343.2	225.0	35.7E		
APR 4	3 8 42.7	18 37 35.3	1.21908	0.71893	-10.959	-3.9	13.7	0.786	-2.1	23.5	343.9	228.2	36.1E		
APR 6	3 18 16.2	19 21 30.8	1.20634	0.71882	-11.098	-3.9	13.8	0.780	-2.2	28.8	344.6	231.5	36.5E		
APR 8	3 27 53.2	20 3 30.8	1.19344	0.71872	-11.236	-3.9	14.0	0.774	-2.3	34.1	345.3	234.7	36.9E		
APR 10	3 37 33.6	20 43 30.0	1.18038	0.71863	-11.373	-3.9	14.1	0.767	-2.4	39.5	346.1	237.9	37.3E		
APR 12	3 47 17.3	21 21 23.7	1.16717	0.71856	-11.510	-3.9	14.3	0.761	-2.4	44.8	346.8	241.2	37.7E		
APR 14	3 57 4.2	21 57 7.0	1.15379	0.71850	-11.648	-3.9	14.5	0.754	-2.5	50.1	347.6	244.4	38.1E		
APR 16	4 6 54.0	22 30 35.6	1.14026	0.71846	-11.785	-3.9	14.6	0.747	-2.6	55.4	348.5	247.7	38.5E		
APR 18	4 16 46.6	23 1 45.0	1.12657	0.71844	-11.923	-3.9	14.8	0.740	-2.7	60.7	349.3	250.9	38.9E		
APR 20	4 26 41.6	23 30 31.5	1.11272	0.71843	-12.058	-4.0	15.0	0.733	-2.7	66.0	350.2	254.2	39.3E		
APR 22	4 36 38.6	23 56 51.2	1.09871	0.71843	-12.191	-4.0	15.2	0.726	-2.8	71.3	351.1	257.4	39.6E		
APR 24	4 46 37.3	24 20 40.9	1.08455	0.71845	-12.319	-4.0	15.4	0.719	-2.9	76.5	352.0	260.7	40.0E		
APR 26	4 56 37.2	24 41 57.6	1.07025	0.71849	-12.443	-4.0	15.6	0.711	-2.9	81.8	352.9	263.9	40.3E		
APR 28	5 6 37.9	25 0 38.7	1.05581	0.71854	-12.562	-4.0	15.8	0.704	-2.9	87.1	353.8	267.2	40.7E		
APR 30	5 16 38.8	25 16 42.2	1.04124	0.71861	-12.676	-4.0	16.0	0.696	-3.0	92.3	354.8	270.4	41.0E		
MAY 2	5 26 39.6	25 30 6.7	1.02653	0.71869	-12.786	-4.0	16.3	0.688	-3.0	97.6	355.7	273.7	41.4E		
MAY 4	5 36 39.6	25 40 51.1	1.01170	0.71879	-12.892	-4.0	16.5	0.680	-3.1	102.8	356.7	276.9	41.7E		
MAY 6	5 46 38.4	25 48 54.9	0.99675	0.71890	-12.994	-4.0	16.7	0.672	-3.1	108.0	357.6	280.2	42.0E		
MAY 8	5 56 35.4	25 54 18.2	0.98168	0.71903	-13.092	-4.0	17.0	0.664	-3.1	113.2	358.6	283.4	42.3E		
MAY 10	6 6 30.0	25 57 1.2	0.96651	0.71917	-13.187	-4.0	17.3	0.655	-3.1	118.4	359.6	286.6	42.6E		
MAY 12	6 16 21.6	25 57 5.0	0.95122	0.71932	-13.280	-4.0	17.5	0.647	-3.1	123.6	0.5	289.9	42.9E		
MAY 14	6 26 9.8	25 54 30.9	0.93583	0.71948	-13.371	-4.0	17.8	0.638	-3.1	128.8	1.5	293.1	43.2E		
MAY 16	6 35 53.8	25 49 21.0	0.92033	0.71966	-13.459	-4.0	18.1	0.629	-3.1	133.9	2.4	296.4	43.4E		
MAY 18	6 45 33.1	25 41 37.7	0.90474	0.71985	-13.545	-4.1	18.4	0.620	-3.1	139.1	3.4	299.6	43.7E		
MAY 20	6 55 7.0	25 31 24.1	0.88904	0.72005	-13.626	-4.1	18.8	0.611	-3.0	144.2	4.3	302.8	43.9E		
MAY 22	7 4 34.9	25 18 43.4	0.87326	0.72026	-13.700	-4.1	19.1	0.602	-3.0	149.3	5.2	306.1	44.2E		
MAY 24	7 13 56.1	25 3 39.3	0.85740	0.72047	-13.768	-4.1	19.5	0.593	-3.0	154.4	6.1	309.3	44.4E		
MAY 26	7 23 10.2	24 46 16.1	0.84146	0.72070	-13.828	-4.1	19.8	0.583	-2.9	159.5	6.9	312.5	44.6E		
MAY 28	7 32 16.5	24 26 38.2	0.82545	0.72094	-13.881	-4.1	20.2	0.573	-2.9	164.5	7.8	315.7	44.7E		
MAY 30	7 41 14.7	24 4 50.7	0.80939	0.72118	-13.927	-4.1	20.6	0.563	-2.8	169.6	8.6	319.0	44.9E		
JUN 1	7 50 4.2	23 40 58.6	0.79328	0.72143	-13.965	-4.1	21.0	0.553	-2.7	174.6	9.4	322.2	45.0E		
JUN 3	7 58 44.5	23 15 7.7	0.77713	0.72169	-13.995	-4.1	21.5	0.543	-2.6	179.6	10.2	325.4	45.2E		
JUN 5	8 7 15.2	22 47 23.5	0.76095	0.72195	-14.018	-4.2	21.9	0.532	-2.5	184.6	10.9	328.6	45.2E		
JUN 7	8 15 35.9	22 17 52.2	0.74475	0.72222	-14.034	-4.2	22.4	0.522	-2.4	189.5	11.6	331.9	45.3E		
JUN 9	8 23 46.3	21 46 39.7	0.72853	0.72249											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 1	9 39 59.8	14 45 3.1	0.55166	0.72543	-13.563	-4.3	30.3	0.373	-0.3	246.3	17.9	10.2	43.7E	
JUL 3	9 45 26.1	14 2 53.8	0.53607	0.72567	-13.437	-4.3	31.1	0.359	0.0	250.8	18.2	13.4	43.2E	
JUL 5	9 50 34.5	13 20 42.0	0.52063	0.72591	-13.293	-4.3	32.1	0.344	0.3	255.1	18.5	16.6	42.7E	
JUL 7	9 55 24.2	12 38 37.1	0.50537	0.72613	-13.131	-4.3	33.0	0.329	0.5	259.4	18.8	19.8	42.2E	
JUL 9	9 59 54.0	11 56 48.3	0.49030	0.72635	-12.950	-4.3	34.0	0.314	0.8	263.7	19.1	23.0	41.5E	
JUL 11	10 4 3.1	11 15 26.0	0.47546	0.72656	-12.750	-4.4	35.1	0.298	1.2	267.8	19.3	26.2	40.8E	
JUL 13	10 7 50.1	10 34 40.9	0.46085	0.72676	-12.528	-4.4	36.2	0.281	1.5	271.9	19.5	29.3	40.0E	
JUL 15	10 11 13.7	9 54 44.7	0.44652	0.72695	-12.281	-4.4	37.4	0.265	1.8	275.8	19.7	32.5	39.1E	
JUL 17	10 14 12.5	9 15 50.1	0.43249	0.72713	-12.005	-4.4	38.6	0.248	2.2	279.7	19.8	35.7	38.1E	
JUL 19	10 16 44.9	8 38 10.3	0.41880	0.72730	-11.696	-4.4	39.8	0.230	2.6	283.5	20.0	38.8	37.1E	
JUL 21	10 18 49.3	8 1 59.4	0.40549	0.72745	-11.350	-4.4	41.2	0.213	3.0	287.1	20.1	42.0	35.9E	
JUL 23	10 20 24.1	7 27 32.6	0.39259	0.72759	-10.965	-4.4	42.5	0.195	3.4	290.7	20.2	45.2	34.6E	
JUL 25	10 21 27.9	6 55 5.8	0.38017	0.72772	-10.536	-4.3	43.9	0.177	3.8	294.1	20.2	48.3	33.1E	
JUL 27	10 21 59.0	6 24 55.5	0.36827	0.72784	-10.059	-4.3	45.3	0.159	4.2	297.3	20.3	51.5	31.6E	
JUL 29	10 21 56.4	5 57 19.1	0.35695	0.72794	-9.533	-4.3	46.8	0.140	4.7	300.4	20.3	54.7	29.9E	
JUL 31	10 21 19.1	5 32 33.7	0.34627	0.72802	-8.954	-4.3	48.2	0.123	5.1	303.4	20.3	57.8	28.1E	
AUG 2	10 20 6.5	5 10 56.7	0.33629	0.72810	-8.320	-4.3	49.6	0.105	5.5	306.2	20.2	61.0	26.1E	
AUG 4	10 18 16.7	4 52 44.3	0.32707	0.72815	-7.632	-4.2	51.0	0.088	6.0	308.8	20.1	64.2	24.0E	
AUG 6	10 15 56.3	4 38 11.3	0.31867	0.72820	-6.888	-4.2	52.4	0.072	6.4	311.3	20.0	67.3	21.8E	
AUG 8	10 13 0.9	4 27 30.6	0.31117	0.72822	-6.092	-4.1	53.6	0.057	6.8	313.7	19.9	70.5	19.5E	
AUG 10	10 9 34.6	4 20 51.9	0.30462	0.72824	-5.244	-4.1	54.8	0.044	7.2	315.9	19.7	73.6	17.1E	
AUG 12	10 5 40.7	4 18 20.9	0.29907	0.72823	-4.348	-4.0	55.8	0.032	7.6	317.9	19.6	76.8	14.7E	
AUG 14	10 1 23.4	4 19 58.3	0.29459	0.72821	-3.408	-4.0	56.7	0.023	7.9	319.8	19.3	80.0	12.4E	
AUG 16	9 56 47.7	4 25 38.4	0.29121	0.72818	-2.431	-3.9	57.3	0.016	8.2	321.7	19.1	83.1	10.4E	
AUG 18	9 51 59.9	4 35 9.2	0.28898	0.72813	-1.427	-3.9	57.8	0.011	8.4	323.5	18.8	86.3	8.8E	
AUG 20	9 47 6.6	4 48 11.8	0.28792	0.72807	-0.407	-3.8	58.0	0.010	8.6	325.2	18.5	89.5	8.1W	
AUG 22	9 42 15.1	5 4 21.0	0.28804	0.72799	0.615	-3.9	57.9	0.011	8.8	326.9	18.2	92.6	8.6W	
AUG 24	9 37 32.6	5 23 6.6	0.28933	0.72790	1.628	-3.9	57.7	0.015	8.8	328.6	18.0	95.8	10.0W	
AUG 26	9 33 6.0	5 43 54.8	0.29179	0.72780	2.617	-4.0	57.2	0.021	8.8	330.4	17.7	98.9	12.0W	
AUG 28	9 29 1.6	6 6 10.1	0.29536	0.72768	3.571	-4.0	56.5	0.030	8.8	332.3	17.4	102.1	14.3W	
AUG 30	9 25 25.0	6 29 16.4	0.30002	0.72755	4.480	-4.1	55.6	0.041	8.7	334.3	17.1	105.3	16.7W	
SEP 1	9 22 20.4	6 52 39.5	0.30569	0.72740	5.335	-4.2	54.6	0.054	8.5	336.4	16.9	108.4	19.1W	
SEP 3	9 19 51.2	7 15 47.9	0.31232	0.72724	6.132	-4.2	53.4	0.069	8.3	338.6	16.7	111.6	21.4W	
SEP 5	9 17 59.3	7 38 14.1	0.31983	0.72707	6.867	-4.3	52.2	0.085	8.1	341.0	16.6	114.8	23.7W	
SEP 7	9 16 45.9	7 59 34.6	0.32816	0.72689	7.542	-4.3	50.9	0.102	7.9	343.6	16.5	118.0	25.9W	
SEP 9	9 16 11.0	8 19 29.7	0.33723	0.72670	8.159	-4.3	49.5	0.119	7.6	346.3	16.5	121.1	27.9W	
SEP 11	9 16 14.2	8 37 43.5	0.34698	0.72650	8.720	-4.4	48.1	0.137	7.3	349.2	16.5	124.3	29.8W	
SEP 13	9 16 54.4	8 54 3.3	0.35735	0.72628	9.230	-4.4	46.7	0.155	7.0	352.3	16.5	127.5	31.5W	
SEP 15	9 18 10.2	9 8 18.8	0.36829	0.72606	9.693	-4.4	45.3	0.174	6.7	355.5	16.6	130.7	33.2W	
SEP 17	9 20 0.0	9 20 22.4	0.37973	0.72583	10.110	-4.4	43.9	0.192	6.3	358.8	16.7	133.8	34.7W	
SEP 19	9 22 22.0	9 30 8.0	0.39163	0.72559	10.487	-4.4	42.6	0.210	6.0	362.0	16.8	137.0	36.0W	
SEP 21	9 25 14.2	9 37 31.3	0.40394	0.72535	10.826	-4.4	41.3	0.228	5.7	365.2	17.0	140.2	37.3W	
SEP 23	9 28 34.8	9 42 29.3	0.41662	0.72509	11.130	-4.4	40.1	0.245	5.4	368.4	17.2	143.4	38.4W	
SEP 25	9 32 21.7	9 44 59.8	0.42964	0.72484	11.401	-4.4	38.8	0.262	5.1	371.5	17.5	146.6	39.5W	
SEP 27	9 36 33.1	9 45 1.7	0.44295	0.72457	11.641	-4.4	37.7	0.279	4.7	374.7	17.7	149.8	40.4W	
SEP 29	9 41 7.3	9 42 34.6	0.45652	0.72431	11.853	-4.4	36.6	0.295	4.4	377.9	18.0	153.0	41.3W	
OCT 1	9 46 2.3	9 37 39.0	0.47032	0.72404	12.038	-4.4	35.5	0.311	4.1	381.0	18.3	156.2	42.0W	
OCT 3	9 51 16.5	9 30 16.4	0.48432	0.72377	12.199	-4.4	34.5	0.327	3.8	384.2	18.6	159.4	42.7W	
OCT 5	9 56 48.2	9 20 28.7	0.49849	0.72350	12.338	-4.4	33.5	0.342	3.6	387.4	18.9	162.6	43.3W	
OCT 7	10 2 35.8	9 8 18.6	0.51282	0.72322	12.460	-4.4	32.5	0.356	3.3	390.6	19.2	165.8	43.9W	
OCT 9	10 8 37.8	8 53 48.8	0.52727	0.72295	12.567	-4.4	31.7	0.370	3.0	393.8	19.6	169.0	44.3W	
OCT 11	10 14 53.0	8 37 2.6	0.54184	0.72268	12.660	-4.4	30.8	0.384	2.8	397.0	19.9	172.2	44.8W	
OCT 13	10 21 20.2	8 18 3.5	0.55651	0.72241	12.741	-4.4	30.0	0.398	2.5	400.2	20.2	175.4	45.1W	
OCT 15	10 27 58.2	7 56 55.1	0.57127	0.72214	12.812	-4.4	29.2	0.411	2.3	403.4	20.5	178.6	45.4W	
OCT 17	10 34 46.2	7 33 41.3	0.58611	0.72188	12.873	-4.4	28.5	0.424	2.0	406.6	20.8	181.8	45.7W	
OCT 19	10 41 43.2	7 8 26.2	0.60101	0.72162	12.926	-4.4	27.8	0.436	1.8	409.8	21.1	185.0	45.9W	
OCT 21	10 48 48.5	6 41 14.0	0.61596	0.72136	12.970	-4.3	27.1	0.449	1.6	413.0	21.3	188.3	46.1W	
OCT 23	10 56 1.4	6 12 9.0	0.63097	0.72112	13.006	-4.3	26.4	0.460	1.4	416.2	21.6	191.5	46.3W	
OCT 25	11 3 21.4	5 41 15.5	0.64601	0.72087	13.034	-4.3	25.8	0.472	1.2	419.4	21.8	194.7	46.4W	
OCT 27	11 10 47.8	5 8 38.2	0.66107	0.72064	13.052	-4.3	25.2	0.483	1.0	422.6	22.0	197.9	46.4W	
OCT 29	11 18 20.3	4 34 21.8	0.67616	0.72042	13.060	-4.3	24.7	0.494	0.8	425.8	22.2	201.2	46.5W	
OCT 31	11 25 58.3	3 58 31.8	0.69124	0.72020	13.060	-4.3	24.1	0.505	0.7	429.0	22.4	204.4	46.5W	
NOV 2	11 33 41.4	3 21 13.6	0.70632	0.72000	13.052	-4.3	23.6	0.516	0.5	432.2	22.5	207.6	46.5W	
NOV 4	11 41 29.3	2 42 32.9	0.72139	0.71980	13.037	-4.3	23.1	0.526	0.3	435.4	22.7	210.9	46.4W	
NOV 6	11 49 21.7	2 2 35.6	0.73644	0.71962	13.018	-4.2	22.7	0.536	0.2	438.6	22.7	214.1	46.4W	
NOV 8	11 57 18.2	1 21 27.4	0.75146	0.71944	12.995	-4.2	22.2	0.546	0.1	441.8	22.8	217.3	46.3W	
NOV 10	12 5 18.7	0 39 14.3	0.76646	0.71928	12.968	-4.2	21.8	0.556	-0.1	445.0	22.8	220.6	46.2W	
NOV 12	12 13 23.0	0 -3-57.6	0.78142	0.71913	12.938	-4.2	21.4	0.566	-0.2	448.2	22.8	223.8	46.1W	
NOV 14	12 21 31.0	0 -48 -2.5	0.79635	0.71900	12.905	-4.2	21.0	0.575	-0.3	451.4	22.8	227.1	45.9W	
NOV 16	12 29 42.7	-1 -32-54.1	0.81123	0.71888	12.870	-4.2	20.6	0.584	-0.4	454.6	22.8	230.3	45.8W	
NOV 18	12 37 58.0	-2 -18-26.5	0.82608	0.71877	12.833	-4.2	20.2	0.593	-0.5	457.8	22.7	233.6	45.6W	
NOV 20	12 46 16.9	-3 -4-33.7	0.84088	0.71868	12.793	-4.2	19.8	0.602	-0.6	461.0	22.6	236.8	45.4W	
NOV 22	12 54 39.5	-3 -51 -9.6	0.85563	0.71860	12.750	-4.2	19.5	0.611	-0.7	464.2	22.4	240.0	45.2W	
NOV 24	13 3 5.8	-4 -38 -8.3	0.87033	0.71854	12.702	-4.1	19.2	0.619	-0.7	467.4	22.2	243.3	45.0W	
NOV 26	13 11 36.0	-5 -25-23.7	0.88497	0.71849	12.649	-4.1	18.9	0.628	-0.8	470.6	22.0	246.5	44.7W	
NOV 28	13 20 10.1	-6 -12-49.5	0.89955	0.71846	12.591	-4.1	18.6	0.636	-0.9	473.8	21.8	249.8	44.5W	
NOV 30	13 28 48.1	-7 0-19.0	0.91406	0.71844	12.528	-4.1	18.3	0.644	-0.9	477.0	21.5	253.0	44.2W	
DEC 2	13 37 30.2	-7 -47-45.8	0.92849	0.71844	12.460	-4.1	18.0	0.652	-1.0	480.2	21.2	256.3	44.0W	
DEC 4	13 46 16.4	-8 -35 -3.1	0.94284	0.71845	12.390	-4.1	17.7	0.660	-1.0	483.4	20.8	259.5	43.7W	
DEC 6	13 55 6.8	-9 -22 -4.3	0.95711	0.71848	12.317	-4.1	17.4	0.668	-1.0	486.6	20.4	262.8	43.4W	
DEC 8	14 4 1.5	-10 -8-42.8	0.97130	0.71853	12.2									

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	PV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	15 57 5.1	-18-18-48.3	1.13444	0.72016	11.252	-4.0	14.7	0.757	-1.0	257.4	12.4	304.9	38.9W	
JAN 3	16 7 2.6	-18-50-35.8	1.14738	0.72037	11.154	-4.0	14.5	0.763	-1.0	262.8	11.5	308.2	38.6W	
JAN 5	16 17 4.7	-19-20-30.9	1.16021	0.72060	11.055	-4.0	14.4	0.769	-1.0	268.2	10.7	311.4	38.2W	
JAN 7	16 27 11.4	-19-48-27.9	1.17292	0.72083	10.956	-4.0	14.2	0.775	-0.9	273.6	9.8	314.6	37.8W	
JAN 9	16 37 22.5	-20-14-21.4	1.18552	0.72107	10.856	-3.9	14.1	0.780	-0.9	279.0	8.9	317.8	37.4W	
JAN 11	16 47 37.6	-20-38 -6.2	1.19800	0.72132	10.757	-3.9	13.9	0.786	-0.9	284.4	7.9	321.1	37.0W	
JAN 13	16 57 56.6	-20-59-37.4	1.21037	0.72157	10.659	-3.9	13.8	0.792	-0.8	289.8	7.0	324.3	36.6W	
JAN 15	17 8 19.1	-21-18-50.6	1.22263	0.72183	10.562	-3.9	13.6	0.797	-0.8	295.2	6.0	327.5	36.2W	
JAN 17	17 18 45.0	-21-35-41.7	1.23477	0.72209	10.466	-3.9	13.5	0.802	-0.7	300.6	5.0	330.7	35.8W	
JAN 19	17 29 13.8	-21-50 -7.1	1.24681	0.72236	10.370	-3.9	13.4	0.808	-0.7	306.0	4.0	333.9	35.4W	
JAN 21	17 39 45.2	-22 -2 -3.5	1.25873	0.72263	10.273	-3.9	13.3	0.813	-0.6	311.4	3.0	337.1	35.0W	
JAN 23	17 50 18.9	-22-11-28.0	1.27054	0.72290	10.174	-3.9	13.1	0.818	-0.6	316.8	2.0	340.3	34.5W	
JAN 25	18 0 54.5	-22-18-18.1	1.28223	0.72317	10.072	-3.9	13.0	0.823	-0.5	322.2	1.0	343.6	34.1W	
JAN 27	18 11 31.4	-22-22-31.8	1.29381	0.72344	9.968	-3.9	12.9	0.828	-0.5	327.7	359.9	346.8	33.7W	
JAN 29	18 22 9.4	-22-24 -7.5	1.30526	0.72372	9.861	-3.9	12.8	0.833	-0.4	333.1	358.9	350.0	33.3W	
JAN 31	18 32 48.0	-22-23 -4.2	1.31659	0.72399	9.753	-3.9	12.7	0.838	-0.4	338.5	357.9	353.2	32.8W	
FEB 2	18 43 26.6	-22-19-21.5	1.32779	0.72426	9.644	-3.9	12.6	0.842	-0.3	343.9	356.8	356.4	32.4W	
FEB 4	18 54 4.9	-22-12-59.2	1.33887	0.72452	9.533	-3.9	12.5	0.847	-0.3	349.3	355.8	359.6	32.0W	
FEB 6	19 4 42.3	-22 -3-57.9	1.34982	0.72479	9.423	-3.9	12.4	0.851	-0.2	354.8	354.8	2.7	31.5W	
FEB 8	19 15 18.4	-21-52-18.5	1.36064	0.72504	9.313	-3.9	12.3	0.856	-0.2	0.2	353.8	5.9	31.1W	
FEB 10	19 25 52.8	-21-38 -2.6	1.37133	0.72530	9.203	-3.9	12.2	0.860	-0.1	5.6	352.8	9.1	30.7W	
FEB 12	19 36 25.0	-21-21-11.9	1.38190	0.72554	9.096	-3.9	12.1	0.865	-0.1	11.1	351.9	12.3	30.2W	
FEB 14	19 46 54.9	-21 -1-49.0	1.39234	0.72578	8.989	-3.8	12.0	0.869	0.0	16.5	350.9	15.5	29.8W	
FEB 16	19 57 21.9	-20-39-56.6	1.40267	0.72602	8.884	-3.8	11.9	0.873	0.0	21.9	350.0	18.7	29.3W	
FEB 18	20 7 45.8	-20-15-37.9	1.41287	0.72624	8.779	-3.8	11.8	0.877	0.1	27.3	349.1	21.9	28.9W	
FEB 20	20 18 6.5	-19-48-56.5	1.42295	0.72645	8.673	-3.8	11.7	0.881	0.1	32.8	348.2	25.0	28.4W	
FEB 22	20 28 23.5	-19-19-56.1	1.43290	0.72666	8.565	-3.8	11.6	0.885	0.2	38.2	347.3	28.2	28.0W	
FEB 24	20 38 36.9	-18-48-40.7	1.44273	0.72685	8.454	-3.8	11.6	0.889	0.2	43.6	346.5	31.4	27.5W	
FEB 26	20 48 46.4	-18-15-14.7	1.45243	0.72704	8.341	-3.8	11.5	0.893	0.2	49.1	345.7	34.6	27.1W	
FEB 28	20 58 51.9	-17-39-42.7	1.46200	0.72721	8.225	-3.8	11.4	0.896	0.3	54.5	344.9	37.7	26.6W	
MAR 1	21 8 53.3	-17 -2 -9.8	1.47144	0.72737	8.107	-3.8	11.3	0.900	0.3	59.9	344.2	40.9	26.1W	
MAR 3	21 18 50.5	-16-22-41.0	1.48073	0.72751	7.988	-3.8	11.3	0.904	0.3	65.4	343.5	44.1	25.7W	
MAR 5	21 28 43.5	-15-41-21.5	1.48989	0.72765	7.867	-3.8	11.2	0.907	0.4	70.8	342.8	47.2	25.2W	
MAR 7	21 38 32.3	-14-58-16.7	1.49891	0.72777	7.745	-3.8	11.1	0.911	0.4	76.3	342.2	50.4	24.7W	
MAR 9	21 48 16.9	-14-13-32.2	1.50778	0.72788	7.623	-3.8	11.1	0.914	0.4	81.7	341.6	53.6	24.3W	
MAR 11	21 57 57.3	-13-27-13.4	1.51652	0.72797	7.502	-3.8	11.0	0.917	0.4	87.1	341.0	56.7	23.8W	
MAR 13	22 7 33.8	-12-39-26.0	1.52511	0.72805	7.382	-3.8	10.9	0.921	0.4	92.6	340.5	59.9	23.3W	
MAR 15	22 17 6.4	-11-50-15.7	1.53357	0.72811	7.262	-3.8	10.9	0.924	0.5	98.0	340.0	63.0	22.9W	
MAR 17	22 26 35.3	-10-59-48.4	1.54189	0.72816	7.143	-3.8	10.8	0.927	0.5	103.4	339.6	66.2	22.4W	
MAR 19	22 36 0.6	-10 -8 -9.5	1.55007	0.72820	7.023	-3.8	10.8	0.930	0.5	108.9	339.2	69.4	21.9W	
MAR 21	22 45 22.7	-9-15-24.6	1.55812	0.72821	6.901	-3.8	10.7	0.933	0.5	114.3	338.8	72.5	21.4W	
MAR 23	22 54 41.7	-8-21-39.4	1.56602	0.72822	6.776	-3.8	10.7	0.936	0.5	119.7	338.5	75.7	20.9W	
MAR 25	23 3 57.9	-7-26-59.4	1.57377	0.72821	6.649	-3.8	10.6	0.939	0.5	125.2	338.2	78.9	20.5W	
MAR 27	23 13 11.6	-6-31-30.2	1.58137	0.72818	6.518	-3.8	10.6	0.942	0.5	130.6	337.9	82.0	20.0W	
MAR 29	23 22 23.1	-5-35-17.6	1.58883	0.72814	6.384	-3.8	10.5	0.945	0.5	136.0	337.7	85.2	19.5W	
MAR 31	23 31 32.5	4 38-27.3	1.59612	0.72809	6.246	-3.8	10.5	0.947	0.5	141.5	337.5	88.3	19.0W	
APR 2	23 40 40.2	-3-41 -5.0	1.60326	0.72801	6.106	-3.8	10.4	0.950	0.5	146.9	337.4	91.5	18.5W	
APR 4	23 49 46.5	-2-43-16.3	1.61023	0.72793	5.963	-3.8	10.4	0.953	0.5	152.3	337.3	94.7	18.0W	
APR 6	23 58 51.6	-1-45 -7.0	1.61703	0.72783	5.819	-3.8	10.3	0.955	0.4	157.7	337.2	97.8	17.5W	
APR 8	0 7 55.8	0-46-42.6	1.62367	0.72772	5.673	-3.8	10.3	0.958	0.4	163.2	337.2	101.0	17.0W	
APR 10	0 16 59.5	0 11 51.1	1.63014	0.72759	5.527	-3.8	10.2	0.960	0.4	168.6	337.2	104.2	16.5W	
APR 12	0 26 3.0	1 10 28.4	1.63644	0.72745	5.382	-3.8	10.2	0.962	0.4	174.0	337.2	107.3	16.0W	
APR 14	0 35 6.6	2 9 3.6	1.64257	0.72730	5.237	-3.8	10.2	0.965	0.4	179.5	337.3	110.5	15.5W	
APR 16	0 44 10.5	3 7 31.2	1.64854	0.72713	5.090	-3.8	10.1	0.967	0.3	184.9	337.4	113.7	15.0W	
APR 18	0 53 15.2	4 5 45.8	1.65433	0.72696	4.943	-3.8	10.1	0.969	0.3	190.3	337.6	116.8	14.5W	
APR 20	1 2 21.0	5 3 41.7	1.65995	0.72677	4.792	-3.8	10.1	0.971	0.3	195.7	337.8	120.0	14.0W	
APR 22	1 11 28.2	6 1 13.6	1.66540	0.72657	4.638	-3.8	10.0	0.973	0.2	201.2	338.0	123.2	13.5W	
APR 24	1 20 37.1	6 58 15.8	1.67067	0.72636	4.481	-3.8	10.0	0.975	0.2	206.6	338.3	126.4	13.0W	
APR 26	1 29 48.0	7 54 42.6	1.67575	0.72614	4.320	-3.8	10.0	0.977	0.2	212.0	338.6	129.5	12.4W	
APR 28	1 39 1.3	8 50 28.4	1.68065	0.72591	4.156	-3.8	9.9	0.979	0.1	217.4	338.9	132.7	11.9W	
APR 30	1 48 17.2	9 45 27.4	1.68535	0.72568	3.987	-3.8	9.9	0.981	0.1	222.9	339.3	135.9	11.4W	
MAY 2	1 57 35.9	10 39 33.7	1.68986	0.72544	3.815	-3.8	9.9	0.983	0.1	228.3	339.7	139.1	10.9W	
MAY 4	2 6 57.8	11 32 41.5	1.69416	0.72519	3.640	-3.8	9.9	0.984	0.0	233.7	340.1	142.3	10.4W	
MAY 6	2 16 23.0	12 24 45.0	1.69827	0.72493	3.462	-3.8	9.8	0.986	0.0	239.1	340.6	145.5	9.8W	
MAY 8	2 25 51.7	13 15 38.2	1.70216	0.72467	3.284	-3.8	9.8	0.987	-0.1	244.6	341.2	148.7	9.3W	
MAY 10	2 35 24.2	14 5 15.2	1.70585	0.72441	3.106	-3.8	9.8	0.989	-0.1	250.0	341.7	151.9	8.8W	
MAY 12	2 45 0.6	14 53 30.1	1.70934	0.72414	2.928	-3.8	9.8	0.990	-0.2	255.4	342.3	155.0	8.2W	
MAY 14	2 54 41.0	15 40 16.9	1.71262	0.72387	2.749	-3.8	9.7	0.991	-0.2	260.8	342.9	158.2	7.7W	
MAY 16	3 4 25.7	16 25 29.9	1.71569	0.72360	2.570	-3.8	9.7	0.992	-0.3	266.3	343.6	161.4	7.2W	
MAY 18	3 14 14.7	17 9 3.6	1.71855	0.72332	2.389	-3.8	9.7	0.993	-0.3	271.7	344.3	164.6	6.6W	
MAY 20	3 24 8.1	17 50 52.1	1.72121	0.72305	2.206	-3.8	9.7	0.994	-0.4	277.1	345.0	167.9	6.1W	
MAY 22	3 34 6.0	18 30 50.0	1.72365	0.72278	2.021	-3.8	9.7	0.995	-0.4	282.5	345.8	171.1	5.6W	
MAY 24	3 44 8.5	19 8 51.6	1.72588	0.72251	1.832	-3.8	9.7	0.996	-0.5	287.9	346.6	174.3	5.0W	
MAY 26	3 54 15.4	19 44 51.6	1.72788	0.72224	1.641	-3.8	9.7	0.997	-0.5	293.4	347.4	177.5	4.5W	
MAY 28	4 4 26.8	20 18 44.5	1.72967	0.72198	1.446	-3.8	9.6	0.998	-0.6	298.8	348.3	180.7	3.9W	
MAY 30	4 14 42.4	20 50 25.2	1.73122	0.72171	1.248	-3.8	9.6	0.998	-0.6	304.2	349.1	183.9	3.4W	
JUN 1	4 25 2.2	21 19 48.8	1.73255	0.72146	1.047	-3.8	9.6	0.999	-0.7	309.6	350.0	187.1	2.9W	
JUN 3	4 35 26.1	21 46 50.4	1.73364	0.72121	0.843	-3.8	9.6	0.999	-0.7	315.0	351.0	190.4	2.3W	
JUN 5	4 45 53.6	22 11 25.6	1.73450	0.72097	0.639	-3.8	9.6	1.000	-0.7	320.5	351.9	193.6	1.8W	
JUN 7	4 56 24.6	22 33 30.2	1.73512	0.72073	0.435	-3.8	9.6	1.000	-0.8	325.9	352.9	196.8	1.2W	
JUN 9	5 6 58.7	22 53 6.2	1.73550	0.72050	0.23									

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E.	S.E.	P.A.	L _s	Solar
	(h	m	s)	(d	'	"	(a.u.)	(km/s)	(")		Lat	Long	Axis		Elong
JUL 1	7	4	48.5	23	26	5.9	1.72437	0.71872	-2.001	-3.8	9.7	0.995	-1.1	30.9	5.4E
JUL 3	7	15	28.4	23	12	16.8	1.72194	0.71864	-2.210	-3.8	9.7	0.995	-1.2	36.4	6.0E
JUL 5	7	26	5.9	22	55	43.5	1.71926	0.71857	-2.418	-3.8	9.7	0.993	-1.2	41.8	6.5E
JUL 7	7	36	40.5	22	36	28.5	1.71635	0.71852	-2.623	-3.8	9.7	0.992	-1.2	47.2	7.1E
JUL 9	7	47	11.9	22	14	34.6	1.71321	0.71848	-2.825	-3.8	9.7	0.991	-1.2	52.6	7.6E
JUL 11	7	57	39.7	21	50	5.3	1.70983	0.71846	-3.024	-3.8	9.8	0.990	-1.2	58.1	8.2E
JUL 13	8	8	3.7	21	23	4.4	1.70622	0.71845	-3.221	-3.8	9.8	0.988	-1.2	63.5	8.8E
JUL 15	8	18	23.6	20	53	36.0	1.70239	0.71846	-3.415	-3.8	9.8	0.987	-1.2	68.9	9.3E
JUL 17	8	28	39.2	20	21	44.4	1.69833	0.71848	-3.607	-3.8	9.8	0.985	-1.2	74.3	9.9E
JUL 19	8	38	50.4	19	47	34.3	1.69406	0.71852	-3.797	-3.8	9.9	0.983	-1.2	79.7	10.4E
JUL 21	8	48	57.0	19	11	10.6	1.68956	0.71858	-3.986	-3.8	9.9	0.982	-1.1	85.2	11.0E
JUL 23	8	58	58.9	18	32	38.1	1.68485	0.71865	-4.174	-3.8	9.9	0.980	-1.1	90.6	11.5E
JUL 25	9	8	56.2	17	52	2.0	1.67992	0.71873	-4.361	-3.8	9.9	0.978	-1.1	96.0	12.1E
JUL 27	9	18	48.7	17	9	27.7	1.67477	0.71883	-4.549	-3.8	10.0	0.976	-1.1	101.4	12.6E
JUL 29	9	28	36.6	16	25	0.7	1.66941	0.71894	-4.737	-3.8	10.0	0.973	-1.0	106.9	13.2E
JUL 31	9	38	19.7	15	38	46.8	1.66383	0.71907	-4.924	-3.8	10.0	0.971	-1.0	112.3	13.7E
AUG 2	9	47	58.3	14	50	51.6	1.65804	0.71921	-5.110	-3.8	10.1	0.969	-1.0	117.7	14.2E
AUG 4	9	57	32.4	14	1	21.1	1.65203	0.71936	-5.292	-3.8	10.1	0.966	-0.9	123.1	14.8E
AUG 6	10	7	2.1	13	10	20.9	1.64581	0.71953	-5.471	-3.8	10.1	0.964	-0.9	128.5	15.3E
AUG 8	10	16	27.5	12	17	57.0	1.63939	0.71971	-5.645	-3.8	10.2	0.961	-0.8	134.0	15.9E
AUG 10	10	25	49.0	11	24	15.2	1.63277	0.71990	-5.815	-3.8	10.2	0.959	-0.8	139.4	16.4E
AUG 12	10	35	6.6	10	29	21.4	1.62596	0.72010	-5.981	-3.8	10.3	0.956	-0.7	144.8	16.9E
AUG 14	10	44	20.6	9	33	21.6	1.61896	0.72031	-6.144	-3.8	10.3	0.953	-0.7	150.2	17.5E
AUG 16	10	53	31.4	8	36	21.3	1.61177	0.72053	-6.302	-3.8	10.4	0.950	-0.6	155.6	18.0E
AUG 18	11	2	39.1	7	38	26.5	1.60440	0.72076	-6.458	-3.8	10.4	0.947	-0.6	161.1	18.5E
AUG 20	11	11	44.0	6	39	42.8	1.59685	0.72099	-6.612	-3.8	10.5	0.944	-0.5	166.5	19.1E
AUG 22	11	20	46.6	5	40	15.7	1.58913	0.72124	-6.763	-3.8	10.5	0.941	-0.4	171.9	19.6E
AUG 24	11	29	47.0	4	40	11.0	1.58123	0.72149	-6.913	-3.8	10.6	0.938	-0.3	177.3	20.1E
AUG 26	11	38	45.7	3	39	34.2	1.57316	0.72174	-7.063	-3.8	10.6	0.935	-0.3	182.7	20.7E
AUG 28	11	47	43.0	2	38	31.2	1.56491	0.72200	-7.213	-3.8	10.7	0.931	-0.2	188.2	21.2E
AUG 30	11	56	39.1	1	37	7.8	1.55649	0.72227	-7.361	-3.8	10.7	0.928	-0.1	193.6	21.7E
SEP 1	12	5	34.3	0	35	29.6	1.54791	0.72254	-7.507	-3.8	10.8	0.925	0.0	199.0	22.2E
SEP 3	12	14	29.1	0	26	17.5	1.53915	0.72281	-7.650	-3.8	10.8	0.921	0.1	204.4	22.7E
SEP 5	12	23	23.6	-1	28	-7.7	1.53024	0.72308	-7.789	-3.8	10.9	0.918	0.1	209.8	23.2E
SEP 7	12	32	18.3	-2	29	-55.4	1.52116	0.72335	-7.923	-3.8	11.0	0.914	0.2	215.2	23.7E
SEP 9	12	41	13.5	-3	31	-34.7	1.51193	0.72362	-8.054	-3.8	11.0	0.910	0.3	220.6	24.3E
SEP 11	12	50	9.5	-4	32	-59.8	1.50256	0.72390	-8.180	-3.8	11.1	0.906	0.4	226.1	24.8E
SEP 13	12	59	6.6	-5	34	-5.0	1.49304	0.72417	-8.302	-3.8	11.2	0.903	0.5	231.5	25.3E
SEP 15	13	8	5.2	-6	34	-44.5	1.48338	0.72443	-8.421	-3.8	11.3	0.899	0.6	236.9	25.8E
SEP 17	13	17	5.7	-7	34	-52.5	1.47358	0.72470	-8.537	-3.8	11.3	0.895	0.7	242.3	26.3E
SEP 19	13	26	8.3	-8	34	-23.5	1.46366	0.72496	-8.651	-3.8	11.4	0.891	0.8	247.7	26.7E
SEP 21	13	35	13.5	-9	33	-11.7	1.45360	0.72521	-8.764	-3.8	11.5	0.887	0.9	253.1	27.2E
SEP 23	13	44	21.5	-10	31	-11.2	1.44341	0.72546	-8.876	-3.8	11.6	0.883	1.0	258.5	27.7E
SEP 25	13	53	32.5	-11	28	-16.0	1.43309	0.72570	-8.988	-3.8	11.6	0.879	1.1	263.9	28.2E
SEP 27	14	2	47.0	-12	24	-20.1	1.42265	0.72593	-9.100	-3.8	11.7	0.874	1.1	269.3	28.7E
SEP 29	14	12	5.0	-13	19	-17.3	1.41207	0.72616	-9.212	-3.8	11.8	0.870	1.2	274.7	29.2E
OCT 1	14	21	26.9	-14	13	-1.6	1.40137	0.72638	-9.321	-3.8	11.9	0.866	1.3	280.1	29.6E
OCT 3	14	30	52.8	-15	5	-26.6	1.39054	0.72658	-9.428	-3.8	12.0	0.861	1.4	285.5	30.1E
OCT 5	14	40	22.9	-15	56	-26.2	1.37959	0.72678	-9.533	-3.8	12.1	0.857	1.5	291.0	30.6E
OCT 7	14	49	57.4	-16	45	-54.1	1.36852	0.72697	-9.634	-3.8	12.2	0.852	1.6	296.4	31.1E
OCT 9	14	59	36.3	-17	33	-44.1	1.35733	0.72714	-9.731	-3.8	12.3	0.848	1.7	301.8	31.5E
OCT 11	15	9	19.8	-18	19	-50.0	1.34604	0.72731	-9.826	-3.8	12.4	0.843	1.8	307.2	32.0E
OCT 13	15	19	7.9	-19	4	-5.8	1.33464	0.72746	-9.917	-3.8	12.5	0.839	1.9	312.6	32.4E
OCT 15	15	29	0.7	-19	46	-25.5	1.32313	0.72760	-10.005	-3.8	12.6	0.834	1.9	318.0	32.9E
OCT 17	15	38	58.2	-20	26	-43.3	1.31152	0.72772	-10.091	-3.9	12.7	0.829	2.0	323.3	33.3E
OCT 19	15	49	0.4	-21	4	-53.6	1.29982	0.72783	-10.176	-3.9	12.8	0.824	2.1	328.7	33.8E
OCT 21	15	59	7.1	-21	40	-51.0	1.28802	0.72793	-10.261	-3.9	13.0	0.819	2.2	334.1	34.2E
OCT 23	16	9	18.4	-22	14	-29.8	1.27611	0.72801	-10.346	-3.9	13.1	0.814	2.2	339.5	34.7E
OCT 25	16	19	33.9	-22	45	-44.9	1.26411	0.72809	-10.432	-3.9	13.2	0.809	2.3	344.9	35.1E
OCT 27	16	29	53.4	-23	14	-31.2	1.25201	0.72814	-10.519	-3.9	13.3	0.804	2.3	350.3	35.5E
OCT 29	16	40	16.8	-23	40	-44.0	1.23981	0.72818	-10.606	-3.9	13.5	0.799	2.4	355.7	36.0E
OCT 31	16	50	43.5	-24	4	-18.9	1.22751	0.72820	-10.691	-3.9	13.6	0.794	2.5	361.1	36.4E
NOV 2	17	1	13.3	-24	25	-11.9	1.21512	0.72821	-10.776	-3.9	13.7	0.789	2.5	366.5	36.8E
NOV 4	17	11	45.7	-24	43	-19.3	1.20262	0.72821	-10.858	-3.9	13.9	0.783	2.5	371.9	37.2E
NOV 6	17	22	20.1	-24	58	-37.9	1.19003	0.72818	-10.938	-3.9	14.0	0.778	2.6	377.2	37.6E
NOV 8	17	32	56.2	-25	11	-4.9	1.17735	0.72815	-11.015	-3.9	14.2	0.773	2.6	382.5	38.0E
NOV 10	17	43	33.4	-25	20	-38.2	1.16459	0.72810	-11.090	-3.9	14.3	0.767	2.6	387.8	38.4E
NOV 12	17	54	11.1	-25	27	-16.0	1.15174	0.72803	-11.161	-3.9	14.5	0.761	2.7	393.1	38.8E
NOV 14	18	4	48.8	-25	30	-57.4	1.13880	0.72795	-11.230	-3.9	14.7	0.756	2.7	398.4	39.2E
NOV 16	18	15	26.1	-25	31	-41.9	1.12579	0.72786	-11.298	-3.9	14.8	0.750	2.7	403.7	39.6E
NOV 18	18	26	2.2	-25	29	-29.6	1.11270	0.72775	-11.365	-4.0	15.0	0.744	2.7	409.0	40.0E
NOV 20	18	36	36.6	-25	24	-20.9	1.09954	0.72763	-11.432	-4.0	15.2	0.738	2.7	414.3	40.4E
NOV 22	18	47	8.9	-25	16	-17.0	1.08629	0.72749	-11.501	-4.0	15.4	0.732	2.7	419.6	40.7E
NOV 24	18	57	38.4	-25	5	-19.4	1.07297	0.72734	-11.570	-4.0	15.6	0.726	2.7	424.9	41.1E
NOV 26	19	8	4.6	-24	51	-30.3	1.05956	0.72718	-11.640	-4.0	15.8	0.720	2.6	430.2	41.4E
NOV 28	19	18	26.9	-24	34	-52.6	1.04608	0.72701	-11.710	-4.0	16.0	0.714	2.6	435.5	41.8E
NOV 30	19	28	44.8	-24	15	-29.4	1.03251	0.72683	-11.780	-4.0	16.2	0.707	2.6	440.8	42.1E
DEC 2	19	38	57.9	-23	53	-24.3	1.01886	0.72663	-11.848	-4.0	16.4	0.701	2.5	446.1	42.5E
DEC 4	19	49	5.6	-23	28	-41.6	1.00514	0.72643	-11.914	-4.0	16.6	0.694	2.5	451.4	42.8E
DEC 6	19	59	7.4	-23	1	-25.6	0.99134	0.72621	-11.979	-4.0	16.8	0.687	2.4	456.7	43.1E
DEC 8	20	9	3.2	-22	31	-41.3	0.97747	0.72599	-12.040	-4.1	17.1	0.680	2.4	462.0	43.4E
DEC 10	20	18	52.4	-21	59	-33.8	0.96353	0.72575	-12.098	-4.1	17.3	0.674	2.3	467.3	43.7E
DEC 1															

2001 VENUS

Geocentric Planetary Ephemeris

2001 VENUS

Date (0 DT)	RA (Mean)			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JAN 1	21 58 51.2	-13-56-51.5	0.80629	0.72287	-12.636	-4.2	20.7	0.588	1.0	165.7	341.0	169.9	46.4E		
JAN 3	22 7 9.9	-13 -3-57.8	0.79167	0.72259	-12.676	-4.2	21.1	0.580	0.8	170.8	340.5	173.2	46.5E		
JAN 5	22 15 20.6	-12-10 -2.7	0.77701	0.72232	-12.712	-4.2	21.5	0.571	0.6	176.0	340.1	176.4	46.7E		
JAN 7	22 23 23.1	-11-15-12.9	0.76230	0.72206	-12.744	-4.2	21.9	0.562	0.4	181.1	339.7	179.6	46.8E		
JAN 9	22 31 17.5	-10-19-35.2	0.74757	0.72180	-12.770	-4.3	22.3	0.552	0.2	186.2	339.4	182.8	46.9E		
JAN 11	22 39 3.6	-9-23-16.4	0.73281	0.72154	-12.789	-4.3	22.8	0.543	0.1	191.3	339.0	186.0	47.0E		
JAN 13	22 46 41.4	-8-26-23.0	0.71802	0.72129	-12.804	-4.3	23.2	0.533	-0.2	196.3	338.8	189.2	47.0E		
JAN 15	22 54 10.9	-7-29 -1.4	0.70323	0.72104	-12.814	-4.3	23.7	0.523	-0.4	201.4	338.5	192.5	47.1E		
JAN 17	23 1 32.1	-6-31-17.8	0.68842	0.72080	-12.821	-4.3	24.2	0.513	-0.6	206.4	338.2	195.7	47.1E		
JAN 19	23 8 44.8	-5-33-18.6	0.67361	0.72057	-12.825	-4.3	24.8	0.503	-0.8	211.4	338.0	198.9	47.1E		
JAN 21	23 15 48.8	-4-35-10.3	0.65880	0.72035	-12.825	-4.3	25.3	0.492	-1.1	216.3	337.8	202.1	47.0E		
JAN 23	23 22 44.0	-3-36-59.4	0.64398	0.72014	-12.821	-4.4	25.9	0.481	-1.3	221.3	337.7	205.4	47.0E		
JAN 25	23 29 30.1	-2-38-52.7	0.62918	0.71993	-12.811	-4.4	26.5	0.470	-1.6	226.2	337.5	208.6	46.9E		
JAN 27	23 36 6.7	-1-40-57.0	0.61439	0.71974	-12.796	-4.4	27.2	0.458	-1.8	231.0	337.4	211.8	46.7E		
JAN 29	23 42 33.4	0-43-19.3	0.59962	0.71956	-12.774	-4.4	27.8	0.446	-2.1	235.8	337.3	215.1	46.6E		
JAN 31	23 48 49.8	0 13 53.1	0.58488	0.71939	-12.743	-4.4	28.5	0.434	-2.4	240.6	337.2	218.3	46.4E		
FEB 2	23 54 55.2	1 10 33.0	0.57018	0.71924	-12.702	-4.4	29.3	0.422	-2.6	245.4	337.2	221.6	46.1E		
FEB 4	0 0 49.0	2 6 32.6	0.55554	0.71909	-12.650	-4.4	30.0	0.409	-2.9	250.0	337.1	224.8	45.8E		
FEB 6	0 6 30.6	3 1 43.9	0.54097	0.71896	-12.584	-4.4	30.8	0.395	-3.2	254.7	337.1	228.0	45.5E		
FEB 8	0 11 59.1	3 55 58.6	0.52648	0.71885	-12.503	-4.5	31.7	0.382	-3.5	259.2	337.1	231.3	45.1E		
FEB 10	0 17 13.6	4 49 8.3	0.51209	0.71875	-12.405	-4.5	32.6	0.368	-3.9	263.8	337.1	234.5	44.6E		
FEB 12	0 22 13.2	5 41 4.3	0.49782	0.71866	-12.292	-4.5	33.5	0.353	-4.1	268.2	337.1	237.8	44.1E		
FEB 14	0 26 56.9	6 31 37.9	0.48370	0.71859	-12.162	-4.5	34.5	0.338	-4.5	272.6	337.1	241.0	43.5E		
FEB 16	0 31 23.6	7 20 39.6	0.46973	0.71853	-12.014	-4.5	35.5	0.323	-4.8	276.9	337.2	244.3	42.9E		
FEB 18	0 35 31.9	8 7 58.9	0.45595	0.71849	-11.847	-4.5	36.6	0.307	-5.1	281.1	337.2	247.5	42.1E		
FEB 20	0 39 20.5	8 53 24.7	0.44237	0.71846	-11.659	-4.5	37.7	0.291	-5.4	285.2	337.2	250.8	41.3E		
FEB 22	0 42 47.7	9 36 44.5	0.42902	0.71845	-11.447	-4.5	38.9	0.274	-5.8	289.3	337.3	254.0	40.4E		
FEB 24	0 45 51.9	10 17 44.6	0.41594	0.71845	-11.207	-4.5	40.1	0.257	-6.1	293.2	337.3	257.3	39.4E		
FEB 26	0 48 31.2	10 56 10.0	0.40314	0.71847	-10.937	-4.5	41.4	0.240	-6.5	297.0	337.3	260.5	38.3E		
FEB 28	0 50 43.8	11 31 44.2	0.39068	0.71850	-10.632	-4.5	42.7	0.222	-6.8	300.7	337.3	263.8	37.1E		
MAR 2	0 52 27.8	12 4 8.8	0.37860	0.71855	-10.289	-4.5	44.1	0.204	-7.1	304.3	337.4	267.0	35.7E		
MAR 4	0 53 41.4	12 33 4.0	0.36693	0.71862	-9.901	-4.5	45.5	0.185	-7.5	307.7	337.4	270.3	34.3E		
MAR 6	0 54 22.7	12 58 8.1	0.35574	0.71870	-9.464	-4.5	46.9	0.166	-7.8	311.0	337.4	273.5	32.7E		
MAR 8	0 54 30.2	13 18 58.4	0.34508	0.71879	-8.975	-4.4	48.4	0.148	-8.1	314.1	337.3	276.8	30.9E		
MAR 10	0 54 3.0	13 35 11.6	0.33503	0.71890	-8.428	-4.4	49.8	0.129	-8.4	317.1	337.3	280.0	29.1E		
MAR 12	0 53 0.4	13 46 25.2	0.32563	0.71903	-7.823	-4.4	51.2	0.111	-8.7	319.9	337.3	283.2	27.1E		
MAR 14	0 51 22.8	13 52 18.0	0.31697	0.71916	-7.159	-4.3	52.6	0.093	-8.9	322.5	337.2	286.5	24.9E		
MAR 16	0 49 11.0	13 52 31.6	0.30912	0.71931	-6.436	-4.3	54.0	0.077	-9.1	325.0	337.2	289.7	22.6E		
MAR 18	0 46 26.9	13 46 51.4	0.30213	0.71948	-5.653	-4.2	55.2	0.061	-9.3	327.3	337.1	293.0	20.2E		
MAR 20	0 43 13.5	13 35 9.2	0.29608	0.71965	-4.813	-4.2	56.4	0.047	-9.4	329.4	337.1	296.2	17.8E		
MAR 22	0 39 34.5	13 17 24.6	0.29103	0.71984	-3.920	-4.1	57.3	0.035	-9.5	331.5	337.0	299.4	15.3E		
MAR 24	0 35 35.0	12 53 47.2	0.28704	0.72004	-2.979	-4.1	58.1	0.024	-9.5	333.4	337.0	302.7	12.9E		
MAR 26	0 31 20.8	12 24 37.9	0.28416	0.72024	-1.999	-4.0	58.7	0.017	-9.5	335.2	336.9	305.9	10.7E		
MAR 28	0 26 58.6	11 50 29.4	0.28243	0.72046	-0.989	-3.9	59.1	0.012	-9.3	336.9	336.9	309.1	8.9W		
MAR 30	0 22 35.3	11 12 5.7	0.28187	0.72069	0.039	-3.9	59.2	0.009	-9.2	338.6	336.9	312.4	8.4W		
APR 1	0 18 18.0	10 30 20.3	0.28252	0.72092	1.073	-3.9	59.1	0.010	-9.0	340.3	336.9	315.6	8.4W		
APR 3	0 14 13.7	9 46 13.8	0.28435	0.72117	2.101	-4.0	58.7	0.014	-8.7	342.1	336.9	318.8	9.7W		
APR 5	0 10 28.6	9 0 50.9	0.28736	0.72142	3.109	-4.0	58.1	0.020	-8.3	343.9	336.9	322.0	11.7W		
APR 7	0 7 8.3	8 15 16.8	0.29152	0.72167	4.085	-4.1	57.2	0.029	-8.0	345.7	336.9	325.3	14.1W		
APR 9	0 4 17.5	7 30 33.5	0.29678	0.72193	5.017	-4.1	56.2	0.040	-7.6	347.8	336.9	328.5	16.5W		
APR 11	0 1 59.4	6 47 36.9	0.30308	0.72220	5.896	-4.2	55.1	0.054	-7.1	349.9	337.0	331.7	18.9W		
APR 13	0 0 16.4	6 7 14.2	0.31037	0.72247	6.717	-4.2	53.8	0.068	-6.7	352.2	337.0	334.9	21.3W		
APR 15	23 59 9.5	5 30 3.0	0.31857	0.72274	7.476	-4.3	52.4	0.084	-6.2	354.7	337.0	338.1	23.6W		
APR 17	23 58 39.1	4 56 31.2	0.32762	0.72301	8.174	-4.3	50.9	0.101	-5.7	357.3	337.1	341.3	25.8W		
APR 19	23 58 44.5	4 26 57.9	0.33743	0.72328	8.812	-4.3	49.5	0.119	-5.3	0.1	337.1	344.5	27.8W		
APR 21	23 59 24.8	4 1 34.5	0.34795	0.72356	9.392	-4.4	48.0	0.137	-4.8	3.0	337.1	347.7	29.7W		
APR 23	0 0 38.4	3 40 26.0	0.35911	0.72383	9.918	-4.4	46.5	0.156	-4.4	6.2	337.1	350.9	31.5W		
APR 25	0 2 23.5	3 23 32.2	0.37084	0.72410	10.394	-4.4	45.0	0.174	-3.9	9.4	337.1	354.1	33.1W		
APR 27	0 4 38.3	3 10 48.7	0.38310	0.72437	10.824	-4.4	43.6	0.192	-3.5	12.8	337.1	357.3	34.5W		
APR 29	0 7 20.8	3 2 8.4	0.39583	0.72464	11.214	-4.4	42.2	0.210	-3.1	16.3	337.1	0.5	35.9W		
MAY 1	0 10 29.1	2 57 22.4	0.40899	0.72490	11.567	-4.4	40.8	0.228	-2.8	20.0	337.1	3.7	37.1W		
MAY 3	0 14 1.3	2 56 20.5	0.42254	0.72516	11.885	-4.4	39.5	0.246	-2.4	23.8	337.1	6.9	38.3W		
MAY 5	0 17 55.8	2 58 51.8	0.43644	0.72541	12.171	-4.4	38.2	0.263	-2.1	27.6	337.1	10.1	39.3W		
MAY 7	0 22 10.8	3 4 45.1	0.45064	0.72565	12.426	-4.4	37.0	0.279	-1.7	31.6	337.2	13.3	40.2W		
MAY 9	0 26 44.9	3 13 48.8	0.46513	0.72589	12.653	-4.4	35.9	0.296	-1.4	35.7	337.2	16.5	41.0W		
MAY 11	0 31 36.7	3 25 50.9	0.47986	0.72612	12.852	-4.4	34.8	0.312	-1.2	39.9	337.2	19.6	41.8W		
MAY 13	0 36 44.6	3 40 39.4	0.49481	0.72634	13.027	-4.4	33.7	0.327	-0.9	44.1	337.3	22.8	42.4W		
MAY 15	0 42 7.6	3 58 2.2	0.50995	0.72655	13.179	-4.4	32.7	0.342	-0.6	48.4	337.4	26.0	43.0W		
MAY 17	0 47 44.3	4 17 47.3	0.52525	0.72675	13.312	-4.4	31.8	0.357	-0.4	52.8	337.5	29.2	43.5W		
MAY 19	0 53 33.7	4 39 43.4	0.54069	0.72694	13.426	-4.3	30.9	0.371	-0.2	57.2	337.6	32.3	44.0W		
MAY 21	0 59 35.0	5 3 39.0	0.55626	0.72712	13.524	-4.3	30.0	0.385	0.0	61.7	337.7	35.5	44.4W		
MAY 23	1 5 47.2	5 29 23.2	0.57193	0.72729	13.608	-4.3	29.2	0.398	0.2	66.3	337.8	38.7	44.7W		
MAY 25	1 12 9.6	5 56 45.6	0.58769	0.72745	13.681	-4.3	28.4	0.411	0.4	70.9	338.0	41.8	45.0W		
MAY 27	1 18 41.6	6 25 35.9	0.60353	0.72759	13.743	-4.3	27.7	0.424	0.5	75.5	338.2	45.0	45.2W		
MAY 29	1 25 22.5	6 55 44.4	0.61944	0.72772	13.797	-4.3	26.9	0.437	0.7	80.2	338.4	48.2	45.4W		
MAY 31	1 32 11.9	7 27 2.0	0.63540	0.72783	13.843	-4.3	26.3	0.449	0.8	85.0	338.6	51.3	45.6W		
JUN 2	1 39 9.4	7 59 20.1	0.65142	0.72794	13.879	-4.2	25.6	0.461	0.9	89.7	338.9	54.5	45.7W		
JUN 4	1 46 14.8	8 32 30.2	0.66746	0.72802	13.907	-4.2	25.0	0.472	1.1	94.5	339.2	57.7	45.8W		
JUN 6	1 53 27.9	9 6 24.4	0.68354	0.72810	13.925	-4.2	24.4	0.484	1.2	99.4	339.5	60.8	45.8W		
JUN 8	2 0 48.2	9 40 54.7	0.69963	0.72816	13.934	-4.2	23.9	0.495							

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h)	m	s	(d ° ' ")											
JUL 2	3	37	27.7	16 35 12.5	0.89073	0.72769	13.521	-4.0	18.7	0.612	1.6	164.3	346.1	101.9	44.2W
JUL 4	3	46	10.8	17 6 8.4	0.90631	0.72756	13.460	-4.0	18.4	0.620	1.6	169.4	346.7	105.1	44.0W
JUL 6	3	54	59.9	17 36 0.6	0.92182	0.72741	13.395	-4.0	18.1	0.629	1.6	174.5	347.5	108.3	43.7W
JUL 8	4	3	54.7	18 4 43.0	0.93726	0.72726	13.324	-4.0	17.8	0.637	1.6	179.6	348.2	111.4	43.5W
JUL 10	4	12	55.3	18 32 9.6	0.95260	0.72709	13.248	-4.0	17.5	0.645	1.6	184.8	349.0	114.6	43.2W
JUL 12	4	22	1.5	18 58 14.4	0.96786	0.72690	13.166	-4.0	17.2	0.653	1.5	190.0	349.8	117.8	42.9W
JUL 14	4	31	13.1	19 22 51.6	0.98302	0.72671	13.080	-4.0	17.0	0.661	1.5	195.1	350.6	121.0	42.6W
JUL 16	4	40	30.1	19 45 55.5	0.99807	0.72651	12.989	-4.0	16.7	0.669	1.5	200.3	351.4	124.1	42.3W
JUL 18	4	49	52.2	20 7 20.8	1.01302	0.72629	12.894	-4.0	16.5	0.677	1.4	205.5	352.3	127.3	41.9W
JUL 20	4	59	19.1	20 27 2.2	1.02786	0.72607	12.795	-4.0	16.2	0.685	1.4	210.7	353.1	130.5	41.6W
JUL 22	5	8	50.7	20 44 54.7	1.04258	0.72584	12.695	-3.9	16.0	0.692	1.3	215.9	354.0	133.7	41.3W
JUL 24	5	18	26.6	21 0 53.6	1.05719	0.72560	12.594	-3.9	15.8	0.700	1.3	221.1	354.9	136.9	40.9W
JUL 26	5	28	6.5	21 14 54.4	1.07168	0.72535	12.493	-3.9	15.6	0.707	1.2	226.4	355.9	140.0	40.6W
JUL 28	5	37	50.2	21 26 53.2	1.08605	0.72510	12.391	-3.9	15.4	0.714	1.2	231.6	356.8	143.2	40.2W
JUL 30	5	47	37.5	21 36 46.4	1.10030	0.72484	12.287	-3.9	15.2	0.721	1.1	236.8	357.7	146.4	39.8W
AUG 1	5	57	28.0	21 44 30.6	1.11443	0.72458	12.181	-3.9	15.0	0.728	1.1	242.1	358.7	149.6	39.4W
AUG 3	6	7	21.4	21 50 2.9	1.12844	0.72431	12.073	-3.9	14.8	0.735	1.0	247.4	359.7	152.8	39.1W
AUG 5	6	17	17.4	21 53 20.1	1.14232	0.72404	11.961	-3.9	14.6	0.742	1.0	252.6	0.6	156.0	38.7W
AUG 7	6	27	15.5	21 54 21.5	1.15607	0.72376	11.845	-3.9	14.4	0.749	0.9	257.9	1.6	159.2	38.3W
AUG 9	6	37	15.6	21 53 2.7	1.16969	0.72349	11.726	-3.9	14.3	0.755	0.8	263.2	2.6	162.4	37.9W
AUG 11	6	47	17.1	21 49 23.7	1.18316	0.72321	11.604	-3.9	14.1	0.762	0.8	268.5	3.5	165.6	37.4W
AUG 13	6	57	19.7	21 43 23.0	1.19649	0.72294	11.477	-3.9	13.9	0.768	0.7	273.8	4.5	168.8	37.0W
AUG 15	7	7	23.1	21 34 59.9	1.20967	0.72267	11.347	-3.9	13.8	0.774	0.6	279.1	5.4	172.0	36.6W
AUG 17	7	17	26.7	21 24 14.3	1.22270	0.72239	11.213	-3.9	13.6	0.781	0.6	284.4	6.4	175.2	36.2W
AUG 19	7	27	30.3	21 11 6.2	1.23558	0.72212	11.078	-3.9	13.5	0.787	0.5	289.7	7.3	178.4	35.8W
AUG 21	7	37	33.3	20 55 36.3	1.24830	0.72186	10.942	-3.9	13.4	0.793	0.5	295.0	8.2	181.7	35.3W
AUG 23	7	47	35.5	20 37 45.7	1.26086	0.72160	10.807	-3.9	13.2	0.799	0.4	300.3	9.2	184.9	34.9W
AUG 25	7	57	36.5	20 17 35.6	1.27326	0.72134	10.673	-3.9	13.1	0.805	0.3	305.7	10.0	188.1	34.5W
AUG 27	8	7	36.1	19 55 8.0	1.28551	0.72109	10.538	-3.9	13.0	0.811	0.3	311.0	10.9	191.3	34.0W
AUG 29	8	17	34.0	19 30 25.2	1.29761	0.72085	10.403	-3.9	12.9	0.816	0.2	316.4	11.8	194.5	33.6W
AUG 31	8	27	29.9	19 3 29.6	1.30955	0.72062	10.267	-3.9	12.7	0.822	0.2	321.7	12.6	197.8	33.1W
SEP 2	8	37	23.7	18 34 24.1	1.32133	0.72039	10.129	-3.9	12.6	0.828	0.1	327.1	13.4	201.0	32.7W
SEP 4	8	47	15.1	18 3 11.6	1.33295	0.72017	9.989	-3.9	12.5	0.833	0.1	332.4	14.2	204.2	32.2W
SEP 6	8	57	4.1	17 29 55.4	1.34440	0.71997	9.847	-3.8	12.4	0.838	0.0	337.8	14.9	207.5	31.7W
SEP 8	9	6	50.4	16 54 39.3	1.35569	0.71977	9.702	-3.8	12.3	0.844	0.0	343.1	15.6	210.7	31.3W
SEP 10	9	16	34.1	16 17 26.9	1.36682	0.71959	9.554	-3.8	12.2	0.849	-0.1	348.5	16.3	213.9	30.8W
SEP 12	9	26	15.1	15 38 22.6	1.37777	0.71941	9.403	-3.8	12.1	0.854	-0.1	353.9	17.0	217.2	30.3W
SEP 14	9	35	53.2	14 57 30.6	1.38854	0.71925	9.249	-3.8	12.0	0.859	-0.2	359.3	17.6	220.4	29.9W
SEP 16	9	45	28.5	14 14 55.7	1.39913	0.71910	9.094	-3.8	11.9	0.864	-0.2	4.7	18.2	223.7	29.4W
SEP 18	9	55	1.0	13 30 42.6	1.40955	0.71897	8.937	-3.8	11.8	0.869	-0.2	10.1	18.8	226.9	28.9W
SEP 20	10	4	30.5	12 44 56.2	1.41978	0.71885	8.782	-3.8	11.8	0.873	-0.3	15.5	19.3	230.1	28.4W
SEP 22	10	13	57.4	11 57 41.6	1.42983	0.71874	8.627	-3.8	11.7	0.878	-0.3	20.9	19.8	233.4	28.0W
SEP 24	10	23	21.5	11 9 3.9	1.43971	0.71865	8.475	-3.8	11.6	0.882	-0.3	26.3	20.3	236.6	27.5W
SEP 26	10	32	43.2	10 19 8.4	1.44941	0.71857	8.323	-3.8	11.5	0.887	-0.4	31.7	20.7	239.9	27.0W
SEP 28	10	42	2.4	9 28 0.4	1.45894	0.71851	8.171	-3.8	11.4	0.891	-0.4	37.1	21.1	243.1	26.5W
SEP 30	10	51	19.5	8 35 45.1	1.46829	0.71846	8.019	-3.8	11.4	0.896	-0.4	42.5	21.4	246.4	26.0W
OCT 2	11	0	34.5	7 42 27.9	1.47747	0.71843	7.867	-3.8	11.3	0.900	-0.4	47.9	21.7	249.6	25.5W
OCT 4	11	9	47.8	6 48 14.1	1.48646	0.71841	7.714	-3.8	11.2	0.904	-0.4	53.3	22.0	252.9	25.1W
OCT 6	11	18	59.6	5 53 9.1	1.49529	0.71841	7.560	-3.8	11.2	0.908	-0.4	58.8	22.2	256.1	24.6W
OCT 8	11	28	10.0	4 57 18.3	1.50393	0.71843	7.403	-3.8	11.1	0.912	-0.5	64.2	22.4	259.4	24.1W
OCT 10	11	37	19.5	4 0 47.4	1.51239	0.71846	7.245	-3.8	11.0	0.916	-0.5	69.6	22.6	262.6	23.6W
OCT 12	11	46	28.2	3 3 42.1	1.52067	0.71851	7.085	-3.8	11.0	0.919	-0.5	75.1	22.7	265.9	23.1W
OCT 14	11	55	36.3	2 6 8.1	1.52876	0.71857	6.922	-3.8	10.9	0.923	-0.5	80.5	22.8	269.1	22.6W
OCT 16	12	4	44.2	1 8 11.4	1.53666	0.71864	6.759	-3.8	10.9	0.927	-0.5	85.9	22.8	272.4	22.1W
OCT 18	12	13	52.1	0 9 57.6	1.54437	0.71873	6.597	-3.8	10.8	0.930	-0.4	91.4	22.8	275.6	21.6W
OCT 20	12	23	0.3	0-48-27.1	1.55190	0.71884	6.436	-3.8	10.8	0.933	-0.4	96.8	22.8	278.8	21.1W
OCT 22	12	32	9.1	-1-46-56.8	1.55924	0.71896	6.277	-3.8	10.7	0.937	-0.4	102.3	22.7	282.1	20.6W
OCT 24	12	41	18.7	-2-45-25.6	1.56640	0.71909	6.120	-3.8	10.7	0.940	-0.4	107.7	22.6	285.3	20.1W
OCT 26	12	50	29.6	-3-43-47.4	1.57338	0.71924	5.965	-3.8	10.6	0.943	-0.4	113.2	22.5	288.6	19.6W
OCT 28	12	59	41.9	-4-41-56.2	1.58018	0.71940	5.811	-3.8	10.6	0.946	-0.4	118.6	22.3	291.8	19.1W
OCT 30	13	8	56.0	-5-39-46.2	1.58681	0.71957	5.658	-3.8	10.5	0.949	-0.3	124.1	22.1	295.1	18.6W
NOV 1	13	18	12.2	-6-37-11.3	1.59325	0.71976	5.506	-3.8	10.5	0.952	-0.3	129.5	21.8	298.3	18.1W
NOV 3	13	27	30.9	-7-34-5.5	1.59953	0.71995	5.354	-3.8	10.4	0.954	-0.3	135.0	21.5	301.5	17.6W
NOV 5	13	36	52.3	-8-30-22.8	1.60562	0.72016	5.202	-3.8	10.4	0.957	-0.3	140.5	21.2	304.8	17.2W
NOV 7	13	46	16.8	-9-25-56.9	1.61155	0.72038	5.048	-3.8	10.4	0.960	-0.2	145.9	20.8	308.0	16.7W
NOV 9	13	55	44.5	-10-20-41.7	1.61729	0.72060	4.893	-3.8	10.3	0.962	-0.2	151.4	20.4	311.2	16.2W
NOV 11	14	5	15.8	-11-14-30.6	1.62285	0.72083	4.737	-3.8	10.3	0.964	-0.2	156.9	19.9	314.4	15.7W
NOV 13	14	14	50.8	-12-7-17.3	1.62823	0.72108	4.579	-3.8	10.2	0.967	-0.1	162.3	19.4	317.7	15.2W
NOV 15	14	24	29.8	-12-58-55.2	1.63343	0.72132	4.422	-3.8	10.2	0.969	-0.1	167.8	18.9	320.9	14.7W
NOV 17	14	34	13.0	-13-49-17.8	1.63845	0.72158	4.265	-3.8	10.2	0.971	0.0	173.3	18.3	324.1	14.2W
NOV 19	14	44	0.5	-14-38-18.8	1.64328	0.72184	4.111	-3.8	10.2	0.973	0.0	178.7	17.7	327.3	13.7W
NOV 21	14	53	52.5	-15-25-51.4	1.64794	0.72210	3.960	-3.8	10.1	0.975	0.0	184.2	17.1	330.6	13.2W
NOV 23	15	3	49.0	-16-11-49.3	1.65243	0.72237	3.810	-3.8	10.1	0.977	0.1	189.7	16.4	333.8	12.7W
NOV 25	15	13	50.2	-16-56-6.0	1.65675	0.72264	3.663	-3.8	10.1	0.979	0.1	195.2	15.7	337.0	12.2W
NOV 27	15	23	56.2	-17-38-35.3	1.66090	0.72292	3.518	-3.8	10.0	0.980	0.2	200.6	15.0	340.2	11.7W
NOV 29	15	34	7.0	-18-19-11.1	1.66488	0.72319	3.374	-3.8	10.0	0.982	0.2	206.1	14.2	343.4	11.2W
DEC 1	15	44	2												

2002 VENUS

Geocentric Planetary Ephemeris

2002 VENUS

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E.	S.E.	P.A.	L _s	Solar
	(h m s)	(d ° ')			(a.u.)	(a.u.)	(km/s)		(")		Lat	Long	Axis		Elong
JAN 2	18 36 46.5	-23-36-38.3	1.70734	0.72724	0.986	-3.8	9.8	0.999	0.9	299.3	357.5	37.6	3.0W		
JAN 4	18 47 45.1	-23-30-7.7	1.70841	0.72740	0.853	-3.8	9.8	0.999	0.9	304.8	356.4	40.7	2.6W		
JAN 6	18 58 42.3	-23-20-42.2	1.70931	0.72755	0.718	-3.8	9.8	0.999	0.9	310.2	355.4	43.9	2.1W		
JAN 8	19 9 37.6	-23-8-23.3	1.71007	0.72768	0.582	-3.8	9.8	1.000	1.0	315.7	354.3	47.1	1.7W		
JAN 10	19 20 30.7	-22-53-13.2	1.71066	0.72780	0.443	-3.8	9.8	1.000	1.0	321.2	353.3	50.2	1.3W		
JAN 12	19 31 21.0	-22-35-14.3	1.71109	0.72791	0.304	-3.8	9.8	1.000	1.0	326.7	352.3	53.4	1.0W		
JAN 14	19 42 8.2	-22-14-29.8	1.71136	0.72800	0.164	-3.8	9.8	1.000	1.0	332.2	351.3	56.6	0.9E		
JAN 16	19 52 51.8	-21-51-3.2	1.71147	0.72808	0.024	-3.8	9.8	1.000	1.0	337.6	350.4	59.7	1.0E		
JAN 18	20 3 31.5	-21-24-58.4	1.71141	0.72815	-0.115	-3.8	9.8	1.000	1.0	343.1	349.4	62.9	1.3E		
JAN 20	20 14 7.0	-20-56-19.6	1.71120	0.72819	-0.253	-3.8	9.8	1.000	1.0	348.6	348.5	66.0	1.7E		
JAN 22	20 24 38.1	-20-25-11.5	1.71083	0.72823	-0.390	-3.8	9.8	0.999	1.0	354.1	347.6	69.2	2.1E		
JAN 24	20 35 4.5	-19-51-39.1	1.71030	0.72825	-0.526	-3.8	9.8	0.999	1.0	359.5	346.8	72.4	2.5E		
JAN 26	20 45 26.0	-19-15-47.5	1.70962	0.72825	-0.660	-3.8	9.8	0.999	1.0	5.0	346.0	75.5	3.0E		
JAN 28	20 55 42.7	-18-37-42.3	1.70878	0.72824	-0.793	-3.8	9.8	0.998	1.0	10.5	345.2	78.7	3.5E		
JAN 30	21 5 54.4	-17-57-29.1	1.70779	0.72821	-0.926	-3.8	9.8	0.998	1.0	16.0	344.4	81.8	3.9E		
FEB 1	21 16 1.0	-17-15-13.6	1.70664	0.72817	-1.060	-3.8	9.8	0.997	1.0	21.4	343.7	85.0	4.4E		
FEB 3	21 26 2.6	-16-31-1.5	1.70534	0.72811	-1.196	-3.8	9.8	0.997	1.0	26.9	343.0	88.2	4.9E		
FEB 5	21 35 59.4	-15-44-58.7	1.70388	0.72804	-1.335	-3.8	9.8	0.996	0.9	32.4	342.4	91.3	5.3E		
FEB 7	21 45 51.2	-14-57-11.3	1.70225	0.72796	-1.477	-3.8	9.8	0.995	0.9	37.9	341.7	94.5	5.8E		
FEB 9	21 55 38.4	-14-7-45.5	1.70046	0.72786	-1.621	-3.8	9.8	0.994	0.9	43.3	341.2	97.7	6.3E		
FEB 11	22 5 20.9	-13-16-47.5	1.69851	0.72774	-1.767	-3.8	9.8	0.994	0.9	48.8	340.6	100.8	6.8E		
FEB 13	22 14 58.9	-12-24-23.6	1.69638	0.72761	-1.915	-3.8	9.8	0.993	0.8	54.3	340.1	104.0	7.2E		
FEB 15	22 24 32.7	-11-30-40.0	1.69408	0.72747	-2.064	-3.8	9.9	0.992	0.8	59.7	339.7	107.2	7.7E		
FEB 17	22 34 2.3	-10-35-43.1	1.69161	0.72732	-2.213	-3.8	9.9	0.991	0.7	65.2	339.3	110.3	8.2E		
FEB 19	22 43 28.1	-9-39-39.0	1.68897	0.72715	-2.363	-3.8	9.9	0.989	0.7	70.7	338.9	113.5	8.7E		
FEB 21	22 52 50.4	-8-42-33.9	1.68616	0.72698	-2.512	-3.8	9.9	0.988	0.7	76.1	338.5	116.7	9.1E		
FEB 23	23 2 9.2	-7-44-34.1	1.68317	0.72679	-2.661	-3.8	9.9	0.987	0.6	81.6	338.2	119.8	9.6E		
FEB 25	23 11 25.1	-6-45-45.8	1.68001	0.72659	-2.809	-3.8	9.9	0.986	0.5	87.0	338.0	123.0	10.1E		
FEB 27	23 20 38.2	-5-46-15.2	1.67668	0.72637	-2.957	-3.8	10.0	0.984	0.5	92.5	337.7	126.2	10.6E		
MAR 1	23 29 48.8	-4-46-8.0	1.67318	0.72615	-3.105	-3.8	10.0	0.983	0.4	98.0	337.5	129.4	11.1E		
MAR 3	23 38 57.4	-3-45-30.2	1.66951	0.72593	-3.255	-3.8	10.0	0.981	0.4	103.4	337.4	132.6	11.5E		
MAR 5	23 48 4.3	-2-44-27.5	1.66566	0.72569	-3.409	-3.8	10.0	0.979	0.3	108.9	337.3	135.7	12.0E		
MAR 7	23 57 9.9	-1-43-5.7	1.66163	0.72544	-3.566	-3.8	10.0	0.978	0.3	114.3	337.2	138.9	12.5E		
MAR 9	0 6 14.3	0-41-30.9	1.65742	0.72519	-3.726	-3.8	10.1	0.976	0.2	119.8	337.2	142.1	13.0E		
MAR 11	0 15 18.1	0 20 11.1	1.65302	0.72494	-3.889	-3.8	10.1	0.974	0.1	125.2	337.2	145.3	13.5E		
MAR 13	0 24 21.5	1 21 54.3	1.64844	0.72467	-4.054	-3.8	10.1	0.972	0.0	130.7	337.2	148.5	14.0E		
MAR 15	0 33 24.9	2 23 32.7	1.64366	0.72441	-4.222	-3.8	10.2	0.970	0.0	136.1	337.3	151.7	14.4E		
MAR 17	0 42 28.5	3 25 0.5	1.63868	0.72414	-4.391	-3.8	10.2	0.968	-0.1	141.6	337.4	154.9	14.9E		
MAR 19	0 51 32.8	4 26 11.7	1.63351	0.72387	-4.561	-3.8	10.2	0.965	-0.2	147.0	337.5	158.1	15.4E		
MAR 21	1 0 38.0	5 27 0.3	1.62815	0.72359	-4.732	-3.8	10.3	0.963	-0.2	152.4	337.7	161.3	15.9E		
MAR 23	1 9 44.4	6 27 20.5	1.62258	0.72332	-4.902	-3.8	10.3	0.961	-0.3	157.9	337.9	164.5	16.4E		
MAR 25	1 18 52.4	7 27 6.1	1.61682	0.72304	-5.072	-3.8	10.3	0.958	-0.4	163.3	338.2	167.7	16.9E		
MAR 27	1 28 2.3	8 26 11.2	1.61087	0.72277	-5.241	-3.8	10.4	0.956	-0.5	168.8	338.5	170.9	17.4E		
MAR 29	1 37 14.3	9 24 29.8	1.60472	0.72249	-5.409	-3.8	10.4	0.953	-0.6	174.2	338.8	174.1	17.8E		
MAR 31	1 46 28.9	10 21 56.3	1.59837	0.72222	-5.578	-3.8	10.4	0.950	-0.6	179.6	339.2	177.3	18.3E		
APR 2	1 55 46.2	11 18 24.9	1.59183	0.72196	-5.749	-3.8	10.5	0.947	-0.7	185.1	339.6	180.5	18.8E		
APR 4	2 5 6.6	12 13 49.8	1.58509	0.72169	-5.922	-3.8	10.5	0.944	-0.8	190.5	340.1	183.7	19.3E		
APR 6	2 14 30.3	13 8 4.9	1.57815	0.72144	-6.098	-3.8	10.6	0.941	-0.9	195.9	340.5	187.0	19.8E		
APR 8	2 23 57.5	14 1 4.3	1.57100	0.72119	-6.276	-3.8	10.6	0.938	-0.9	201.3	341.1	190.2	20.3E		
APR 10	2 33 28.5	14 52 42.0	1.56365	0.72094	-6.456	-3.8	10.7	0.935	-1.0	206.7	341.6	193.4	20.8E		
APR 12	2 43 3.3	15 42 51.9	1.55609	0.72070	-6.638	-3.8	10.7	0.932	-1.1	212.2	342.2	196.6	21.3E		
APR 14	2 52 42.2	16 31 28.0	1.54831	0.72047	-6.822	-3.8	10.8	0.928	-1.2	217.6	342.8	199.9	21.8E		
APR 16	3 2 25.3	17 18 24.3	1.54033	0.72025	-7.006	-3.8	10.8	0.925	-1.3	223.0	343.5	203.1	22.3E		
APR 18	3 12 12.6	18 3 35.0	1.53213	0.72004	-7.190	-3.8	10.9	0.921	-1.3	228.4	344.2	206.3	22.8E		
APR 20	3 22 4.1	18 46 54.2	1.52372	0.71984	-7.373	-3.8	11.0	0.917	-1.4	233.8	344.9	209.6	23.2E		
APR 22	3 31 59.8	19 28 16.0	1.51510	0.71965	-7.555	-3.8	11.0	0.913	-1.5	239.2	345.6	212.8	23.7E		
APR 24	3 41 59.8	20 7 34.7	1.50627	0.71947	-7.735	-3.8	11.1	0.909	-1.5	244.6	346.4	216.0	24.2E		
APR 26	3 52 3.8	20 44 45.0	1.49723	0.71931	-7.912	-3.8	11.1	0.905	-1.6	250.0	347.2	219.3	24.7E		
APR 28	4 2 12.0	21 19 41.7	1.48799	0.71916	-8.086	-3.8	11.2	0.901	-1.7	255.4	348.1	222.5	25.2E		
APR 30	4 12 24.0	21 52 20.0	1.47855	0.71902	-8.260	-3.8	11.3	0.897	-1.7	260.8	348.9	225.8	25.7E		
MAY 2	4 22 39.9	22 22 35.2	1.46891	0.71889	-8.434	-3.8	11.4	0.893	-1.8	266.2	349.8	229.0	26.2E		
MAY 4	4 32 59.3	22 50 22.8	1.45907	0.71878	-8.609	-3.8	11.4	0.888	-1.8	271.6	350.7	232.3	26.7E		
MAY 6	4 43 22.0	23 15 38.6	1.44902	0.71868	-8.784	-3.8	11.5	0.884	-1.9	277.0	351.7	235.5	27.2E		
MAY 8	4 53 47.6	23 38 18.7	1.43877	0.71860	-8.959	-3.8	11.6	0.879	-1.9	282.4	352.6	238.7	27.7E		
MAY 10	5 4 15.9	23 58 19.5	1.42833	0.71853	-9.135	-3.8	11.7	0.874	-2.0	287.8	353.6	242.0	28.1E		
MAY 12	5 14 46.5	24 15 37.8	1.41767	0.71848	-9.310	-3.8	11.8	0.870	-2.0	293.1	354.6	245.2	28.6E		
MAY 14	5 25 18.8	24 30 11.0	1.40682	0.71844	-9.485	-3.8	11.9	0.865	-2.1	298.5	355.6	248.5	29.1E		
MAY 16	5 35 52.5	24 41 56.8	1.39576	0.71842	-9.659	-3.8	12.0	0.860	-2.1	303.9	356.6	251.7	29.6E		
MAY 18	5 46 27.0	24 50 53.4	1.38450	0.71841	-9.831	-3.8	12.1	0.854	-2.1	309.3	357.6	255.0	30.1E		
MAY 20	5 57 1.9	24 56 59.4	1.37305	0.71842	-9.999	-3.8	12.2	0.849	-2.1	314.6	358.7	258.2	30.5E		
MAY 22	6 7 36.5	25 0 14.1	1.36141	0.71844	-10.164	-3.8	12.3	0.844	-2.2	320.0	359.7	261.5	31.0E		
MAY 24	6 18 10.4	25 0 37.1	1.34957	0.71848	-10.324	-3.8	12.4	0.838	-2.2	325.3	0.7	264.7	31.5E		
MAY 26	6 28 43.0	24 58 8.8	1.33756	0.71854	-10.479	-3.8	12.5	0.833	-2.2	330.7	1.7	268.0	32.0E		
MAY 28	6 39 13.8	24 52 50.1	1.32537	0.71861	-10.630	-3.9	12.6	0.827	-2.2	336.1	2.7	271.2	32.4E		
MAY 30	6 49 42.5	24 44 42.3	1.31300	0.71870	-10.779	-3.9	12.7	0.821	-2.2	341.4	3.8	274.5	32.9E		
JUN 1	7 0 8.4	24 33 47.2	1.30047	0.71880	-10.925	-3.9	12.8	0.816	-2.2	346.7	4.8	277.7	33.4E		
JUN 3	7 10 31.1	24 20 6.9	1.28776	0.71891	-11.069	-3.9	13.0	0.810	-2.2	352.1	5.7	281.0	33.8E		
JUN 5	7 20 50.3	24 3 44.2	1.27490	0.71904	-11.212	-3.9	13.1	0.804	-2.2	357.4	6.7	284.2	34.3E		
JUN 7	7 31 5.4	23 44 41.9	1.26186	0.71918	-11.353	-3.9	13.2	0.797	-2.1	2.7	7.7	287.4	34.7E		
JUN 9	7 41 16.1	23 23 3.6	1.24867	0.71934	-11.492	-3.9	13.4	0.791	-2.1	8.1	8.6	290.7	35.2E		
JUN 11	7 51 2														

Date (0 DT)	RA [Mean] (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	9 27 3.0	16 55 4.6	1.09389	0.72174	-12.774	-3.9	15.3	0.717	-1.4	66.3	17.1	326.2	39.8E
JUL 3	9 36 2.6	16 8 26.7	1.07908	0.72201	-12.863	-3.9	15.5	0.709	-1.3	71.5	17.6	329.4	40.2E
JUL 5	9 44 55.9	15 20 19.1	1.06417	0.72227	-12.950	-3.9	15.7	0.702	-1.2	76.8	18.2	332.6	40.5E
JUL 7	9 53 43.1	14 30 47.5	1.04916	0.72254	-13.034	-4.0	15.9	0.694	-1.1	82.0	18.7	335.9	40.9E
JUL 9	10 2 24.1	13 39 57.4	1.03406	0.72282	-13.115	-4.0	16.1	0.687	-1.0	87.2	19.2	339.1	41.3E
JUL 11	10 10 59.2	12 47 54.6	1.01887	0.72309	-13.195	-4.0	16.4	0.679	-0.9	92.5	19.7	342.3	41.6E
JUL 13	10 19 28.4	11 54 44.8	1.00358	0.72336	-13.271	-4.0	16.6	0.671	-0.7	97.7	20.1	345.5	42.0E
JUL 15	10 27 51.7	11 0 33.6	0.98821	0.72364	-13.344	-4.0	16.9	0.663	-0.6	102.9	20.5	348.7	42.3E
JUL 17	10 36 9.4	10 5 26.8	0.97275	0.72391	-13.412	-4.0	17.2	0.655	-0.5	108.1	20.8	351.9	42.6E
JUL 19	10 44 21.5	9 9 29.9	0.95723	0.72418	-13.474	-4.0	17.4	0.647	-0.3	113.3	21.2	355.1	42.9E
JUL 21	10 52 28.4	8 12 48.5	0.94163	0.72445	-13.529	-4.0	17.7	0.639	-0.2	118.4	21.5	358.3	43.2E
JUL 23	11 0 29.1	7 15 28.2	0.92597	0.72472	-13.578	-4.0	18.0	0.631	0.0	123.6	21.7	1.5	43.5E
JUL 25	11 8 25.5	6 17 34.2	0.91026	0.72498	-13.621	-4.0	18.3	0.622	0.2	128.7	22.0	4.7	43.8E
JUL 27	11 16 16.6	5 19 11.8	0.89451	0.72523	-13.659	-4.0	18.7	0.614	0.3	133.9	22.2	7.9	44.1E
JUL 29	11 24 2.8	4 20 26.1	0.87871	0.72548	-13.692	-4.1	19.0	0.605	0.5	139.0	22.3	11.0	44.3E
JUL 31	11 31 44.3	3 21 21.8	0.86288	0.72573	-13.721	-4.1	19.3	0.596	0.7	144.1	22.5	14.2	44.6E
AUG 2	11 39 21.2	2 22 4.0	0.84702	0.72596	-13.746	-4.1	19.7	0.587	0.9	149.2	22.6	17.4	44.8E
AUG 4	11 46 53.6	1 22 37.4	0.83113	0.72619	-13.767	-4.1	20.1	0.578	1.1	154.3	22.7	20.6	45.0E
AUG 6	11 54 21.7	0 23 6.8	0.81521	0.72641	-13.786	-4.1	20.5	0.569	1.2	159.4	22.8	23.8	45.2E
AUG 8	12 1 45.5	0-36-22.8	0.79928	0.72661	-13.802	-4.1	20.9	0.560	1.4	164.4	22.8	26.9	45.4E
AUG 10	12 9 5.0	-1-35-46.4	0.78333	0.72681	-13.815	-4.1	21.3	0.550	1.6	169.5	22.9	30.1	45.5E
AUG 12	12 16 20.1	-2-34-59.2	0.76736	0.72700	-13.825	-4.1	21.7	0.541	1.9	174.5	22.9	33.3	45.6E
AUG 14	12 23 30.9	-3-33-55.8	0.75139	0.72718	-13.830	-4.2	22.2	0.531	2.1	179.5	22.8	36.5	45.8E
AUG 16	12 30 37.3	-4-32-31.3	0.73542	0.72734	-13.828	-4.2	22.7	0.521	2.3	184.4	22.8	39.6	45.9E
AUG 18	12 37 39.1	-5-30-40.4	0.71945	0.72749	-13.820	-4.2	23.2	0.511	2.5	189.4	22.7	42.8	45.9E
AUG 20	12 44 36.1	-6-28-18.1	0.70349	0.72763	-13.803	-4.2	23.7	0.500	2.7	194.3	22.6	46.0	46.0E
AUG 22	12 51 28.3	-7-25-19.2	0.68756	0.72775	-13.779	-4.2	24.3	0.490	2.9	199.2	22.5	49.1	46.0E
AUG 24	12 58 15.3	-8-21-38.9	0.67166	0.72787	-13.747	-4.2	24.8	0.479	3.2	204.1	22.4	52.3	46.0E
AUG 26	13 4 57.0	-9-17-12.3	0.65581	0.72796	-13.707	-4.2	25.4	0.468	3.4	209.0	22.2	55.5	46.0E
AUG 28	13 11 33.0	-10-11-54.8	0.64000	0.72805	-13.660	-4.3	26.1	0.457	3.6	213.8	22.1	58.6	45.9E
AUG 30	13 18 3.1	-11-5-41.6	0.62425	0.72812	-13.607	-4.3	26.7	0.445	3.9	218.6	21.9	61.8	45.8E
SEP 1	13 24 26.7	-11-58-27.9	0.60857	0.72817	-13.546	-4.3	27.4	0.433	4.1	223.3	21.7	64.9	45.6E
SEP 3	13 30 43.5	-12-50-8.9	0.59296	0.72821	-13.478	-4.3	28.1	0.421	4.3	228.0	21.5	68.1	45.5E
SEP 5	13 36 52.8	-13-40-39.5	0.57744	0.72823	-13.402	-4.3	28.9	0.409	4.6	232.7	21.3	71.3	45.3E
SEP 7	13 42 53.9	-14-29-54.6	0.56200	0.72824	-13.320	-4.3	29.7	0.396	4.8	237.3	21.0	74.4	45.0E
SEP 9	13 48 46.0	-15-17-48.5	0.54667	0.72824	-13.229	-4.4	30.5	0.384	5.0	241.9	20.8	77.6	44.7E
SEP 11	13 54 28.2	-16-4-15.4	0.53144	0.72821	-13.127	-4.4	31.4	0.370	5.3	246.4	20.5	80.8	44.3E
SEP 13	13 59 59.3	-16-49-8.9	0.51635	0.72818	-13.012	-4.4	32.3	0.357	5.5	250.9	20.3	83.9	43.9E
SEP 15	14 5 18.3	-17-32-22.3	0.50139	0.72813	-12.881	-4.4	33.3	0.343	5.8	255.3	20.0	87.1	43.4E
SEP 17	14 10 23.6	-18-13-48.6	0.48659	0.72806	-12.733	-4.4	34.3	0.328	6.0	259.6	19.8	90.2	42.9E
SEP 19	14 15 14.0	-18-53-20.4	0.47198	0.72798	-12.565	-4.4	35.4	0.313	6.2	263.9	19.5	93.4	42.2E
SEP 21	14 19 48.0	-19-30-50.1	0.45757	0.72788	-12.377	-4.4	36.5	0.298	6.5	268.1	19.3	96.6	41.6E
SEP 23	14 24 3.8	-20-6-9.3	0.44340	0.72778	-12.167	-4.4	37.6	0.283	6.7	272.2	19.1	99.7	40.8E
SEP 25	14 27 59.7	-20-39-9.3	0.42947	0.72765	-11.933	-4.5	38.9	0.266	6.9	276.2	18.9	102.9	39.9E
SEP 27	14 31 34.0	-21-9-40.3	0.41584	0.72752	-11.672	-4.5	40.1	0.250	7.1	280.2	18.7	106.1	38.9E
SEP 29	14 34 44.7	-21-37-31.8	0.40252	0.72737	-11.384	-4.5	41.5	0.233	7.3	284.0	18.5	109.2	37.9E
OCT 1	14 37 29.7	-22-2-31.9	0.38955	0.72721	-11.065	-4.5	42.8	0.216	7.5	287.7	18.3	112.4	36.7E
OCT 3	14 39 47.0	-22-24-27.5	0.37697	0.72703	-10.714	-4.5	44.3	0.198	7.7	291.3	18.2	115.6	35.4E
OCT 5	14 41 34.5	-22-43-3.8	0.36481	0.72685	-10.326	-4.5	45.7	0.180	7.9	294.7	18.1	118.7	34.0E
OCT 7	14 42 50.3	-22-58-4.6	0.35313	0.72665	-9.900	-4.4	47.3	0.162	8.0	298.0	18.0	121.9	32.4E
OCT 9	14 43 32.4	-23-9-11.7	0.34196	0.72644	-9.429	-4.4	48.8	0.144	8.1	301.2	18.0	125.1	30.7E
OCT 11	14 43 39.3	-23-16-5.5	0.33136	0.72623	-8.908	-4.4	50.4	0.126	8.2	304.2	18.0	128.3	28.9E
OCT 13	14 43 9.6	-23-18-25.5	0.32140	0.72600	-8.332	-4.4	51.9	0.109	8.3	307.1	18.0	131.5	26.9E
OCT 15	14 42 2.8	-23-15-51.5	0.31213	0.72577	-7.698	-4.3	53.5	0.091	8.4	309.8	18.1	134.6	24.8E
OCT 17	14 40 19.4	-23-8-5.0	0.30364	0.72553	-7.004	-4.3	55.0	0.075	8.4	312.4	18.2	137.8	22.5E
OCT 19	14 38 0.5	-22-54-51.1	0.29597	0.72528	-6.249	-4.3	56.4	0.059	8.3	314.7	18.3	141.0	20.1E
OCT 21	14 35 8.7	-22-36-0.0	0.28922	0.72503	-5.434	-4.2	57.7	0.045	8.2	317.0	18.5	144.2	17.5E
OCT 23	14 31 47.6	-22-11-30.0	0.28344	0.72477	-4.564	-4.1	58.9	0.032	8.1	319.1	18.7	147.4	14.9E
OCT 25	14 28 2.1	-21-41-28.9	0.27869	0.72451	-3.644	-4.1	59.9	0.022	7.9	321.0	18.9	150.6	12.2E
OCT 27	14 23 58.2	-21-6-16.4	0.27504	0.72424	-2.682	-4.0	60.7	0.013	7.6	322.9	19.1	153.8	9.6E
OCT 29	14 19 42.8	-20-26-24.6	0.27251	0.72397	-1.689	-4.0	61.2	0.008	7.3	324.7	19.3	157.0	7.3E
OCT 31	14 15 23.1	-19-42-37.6	0.27114	0.72370	-0.677	-3.9	61.6	0.005	7.0	326.4	19.6	160.2	5.8E
NOV 2	14 11 6.8	-18-55-50.1	0.27094	0.72342	0.339	-3.9	61.6	0.005	6.6	328.2	19.8	163.4	5.9W
NOV 4	14 7 1.0	-18-7-4.3	0.27192	0.72315	1.348	-4.0	61.4	0.008	6.2	329.9	20.0	166.6	7.5W
NOV 6	14 3 12.4	-17-17-26.5	0.27405	0.72288	2.338	-4.0	60.9	0.014	5.7	331.8	20.1	169.8	9.8W
NOV 8	13 59 46.7	-16-28-2.8	0.27730	0.72260	3.299	-4.1	60.2	0.022	5.2	333.7	20.3	173.0	12.5W
NOV 10	13 56 48.8	-15-39-56.5	0.28165	0.72233	4.222	-4.2	59.3	0.033	4.7	335.7	20.4	176.2	15.2W
NOV 12	13 54 22.5	-14-54-4.6	0.28704	0.72207	5.100	-4.2	58.1	0.046	4.2	337.8	20.5	179.4	17.8W
NOV 14	13 52 30.3	-14-11-16.1	0.29341	0.72180	5.924	-4.3	56.9	0.061	3.7	340.1	20.6	182.6	20.4W
NOV 16	13 51 14.1	-13-32-10.0	0.30070	0.72155	6.693	-4.4	55.5	0.077	3.2	342.6	20.6	185.9	22.9W
NOV 18	13 50 34.5	-12-57-15.5	0.30884	0.72129	7.402	-4.4	54.0	0.094	2.7	345.2	20.6	189.1	25.2W
NOV 20	13 50 31.6	-12-26-51.7	0.31777	0.72105	8.052	-4.4	52.5	0.112	2.2	347.9	20.6	192.3	27.4W
NOV 22	13 51 4.8	-12-1-9.1	0.32742	0.72081	8.644	-4.5	51.0	0.130	1.8	350.9	20.6	195.5	29.4W
NOV 24	13 52 12.7	-11-40-10.4	0.33772	0.72058	9.179	-4.5	49.4	0.149	1.4	354.0	20.6	198.8	31.3W
NOV 26	13 53 54.1	-11-23-52.1	0.34861	0.72036	9.660	-4.5	47.9	0.168	1.0	357.2	20.5	202.0	33.0W
NOV 28	13 56 7.2	-11-12-5.6	0.36002	0.72014	10.091	-4.5	46.4	0.186	0.6	0.6	20.4	205.2	34.6W
NOV 30	13 58 50.0	-11-4-38.7	0.37190	0.71994	10.475	-4.5	44.9	0.205	0.2	4.2	20.2	208.4	36.1W
DEC 2	14 2 0.9	-11-1-16.4	0.38420	0.71975	10.818	-4.5	43.4	0.223	-0.1	7.9	20.1	211.7	37.4W
DEC 4	14 5 37.7	-11-1-42.4	0.39687	0.71957	11.124	-4.5	42.1	0.241	-0.4	11.7	19.9	214.9	38.6W
DEC 6	14 9 38.8	-11-5-39.3	0.40988	0.71940	11.398	-4.5	40.7	0.258	-0.7	15.6	19.7	218.2	39.7W
DEC 8	14 14 2.3	-11-12-49.6</											

2003 VENUS

Geocentric Planetary Ephemeris

2003 VENUS

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E.	S.E.	P.A.	L _s	Solar
	(h m s)	(d ' ")			(a.u.)	(a.u.)	(km/s)		(")		Lat	Long	Axis		Elong
JAN 1	15 28 48.8	-15-14-43.6	0.59728	0.71847	13.078	-4.4	27.9	0.445	-2.4	73.7	14.6	260.3	46.6W		
JAN 3	15 36 27.1	-15-40-48.3	0.61241	0.71851	13.110	-4.4	27.3	0.457	-2.5	78.6	14.0	263.6	46.7W		
JAN 5	15 44 15.4	-16 -6-50.3	0.62757	0.71856	13.135	-4.4	26.6	0.469	-2.5	83.5	13.4	266.8	46.8W		
JAN 7	15 52 13.3	-16-32-39.4	0.64275	0.71862	13.156	-4.4	26.0	0.480	-2.5	88.4	12.8	270.1	46.9W		
JAN 9	16 0 20.4	-16-58 -5.7	0.65796	0.71870	13.171	-4.3	25.4	0.491	-2.5	93.3	12.1	273.3	46.9W		
JAN 11	16 8 36.4	-17-22-59.8	0.67318	0.71880	13.181	-4.3	24.8	0.501	-2.5	98.3	11.4	276.6	47.0W		
JAN 13	16 17 0.9	-17-47-12.8	0.68841	0.71891	13.186	-4.3	24.2	0.512	-2.5	103.3	10.7	279.8	46.9W		
JAN 15	16 25 33.6	-18-10-36.2	0.70364	0.71903	13.187	-4.3	23.7	0.522	-2.5	108.4	9.9	283.1	46.9W		
JAN 17	16 34 14.3	-18-33 -1.8	0.71887	0.71917	13.182	-4.3	23.2	0.532	-2.4	113.4	9.2	286.3	46.8W		
JAN 19	16 43 2.5	-18-54-21.6	0.73409	0.71931	13.172	-4.3	22.7	0.542	-2.4	118.5	8.4	289.5	46.8W		
JAN 21	16 51 58.0	-19-14-28.0	0.74930	0.71948	13.156	-4.3	22.3	0.551	-2.4	123.6	7.5	292.8	46.7W		
JAN 23	17 1 0.4	-19-33-13.5	0.76448	0.71965	13.133	-4.2	21.8	0.561	-2.3	128.7	6.7	296.0	46.5W		
JAN 25	17 10 9.4	-19-50-31.1	0.77963	0.71984	13.104	-4.2	21.4	0.570	-2.3	133.8	5.8	299.3	46.4W		
JAN 27	17 19 24.5	-20 -6-14.2	0.79475	0.72003	13.070	-4.2	21.0	0.579	-2.2	139.0	5.0	302.5	46.2W		
JAN 29	17 28 45.4	-20-20-16.5	0.80983	0.72024	13.032	-4.2	20.6	0.588	-2.2	144.2	4.1	305.7	46.0W		
JAN 31	17 38 11.6	-20-32-32.4	0.82486	0.72046	12.991	-4.2	20.2	0.596	-2.1	149.3	3.2	309.0	45.9W		
FEB 2	17 47 42.5	-20-42-56.5	0.83984	0.72068	12.948	-4.2	19.9	0.605	-2.0	154.5	2.2	312.2	45.7W		
FEB 4	17 57 17.9	-20-51-24.1	0.85477	0.72092	12.904	-4.2	19.5	0.613	-2.0	159.8	1.3	315.4	45.4W		
FEB 6	18 6 57.2	-20-57-51.0	0.86965	0.72116	12.860	-4.1	19.2	0.621	-1.9	165.0	0.4	318.6	45.2W		
FEB 8	18 16 40.0	-21 -2-13.3	0.88448	0.72141	12.814	-4.1	18.9	0.629	-1.8	170.2	359.4	321.9	45.0W		
FEB 10	18 26 25.8	-21 -4-28.0	0.89925	0.72166	12.767	-4.1	18.6	0.637	-1.7	175.4	358.5	325.1	44.7W		
FEB 12	18 36 14.3	-21 -4-32.2	0.91397	0.72192	12.719	-4.1	18.3	0.645	-1.6	180.7	357.5	328.3	44.4W		
FEB 14	18 46 5.0	-21 -2-23.8	0.92864	0.72218	12.670	-4.1	18.0	0.652	-1.6	186.0	356.6	331.5	44.2W		
FEB 16	18 55 57.5	-20-58 -0.9	0.94324	0.72245	12.619	-4.1	17.7	0.660	-1.5	191.2	355.6	334.7	43.9W		
FEB 18	19 5 51.4	-20-51-22.2	0.95779	0.72272	12.565	-4.1	17.4	0.667	-1.4	196.5	354.7	337.9	43.6W		
FEB 20	19 15 46.2	-20-42-26.6	0.97227	0.72299	12.507	-4.1	17.2	0.674	-1.3	201.8	353.8	341.1	43.3W		
FEB 22	19 25 41.5	-20-31-13.5	0.98668	0.72327	12.444	-4.0	16.9	0.682	-1.2	207.1	352.8	344.4	42.9W		
FEB 24	19 35 37.0	-20-17-43.1	1.00101	0.72354	12.378	-4.0	16.7	0.689	-1.1	212.4	351.9	347.6	42.6W		
FEB 26	19 45 32.2	-20 -1-55.9	1.01527	0.72381	12.309	-4.0	16.4	0.695	-1.1	217.7	351.0	350.8	42.3W		
FEB 28	19 55 26.7	-19-43-53.1	1.02945	0.72408	12.238	-4.0	16.2	0.702	-1.0	223.0	350.1	354.0	42.0W		
MAR 2	20 5 20.0	-19-23-36.2	1.04354	0.72435	12.165	-4.0	16.0	0.709	-0.9	228.3	349.3	357.2	41.6W		
MAR 4	20 15 11.9	-19 -1 -7.2	1.05755	0.72461	12.093	-4.0	15.8	0.715	-0.8	233.6	348.4	0.3	41.3W		
MAR 6	20 25 1.9	-18-36-28.3	1.07148	0.72487	12.019	-4.0	15.6	0.722	-0.7	238.9	347.6	3.5	40.9W		
MAR 8	20 34 50.0	-18 -9-42.4	1.08532	0.72513	11.946	-4.0	15.4	0.728	-0.6	244.3	346.8	6.7	40.5W		
MAR 10	20 44 35.7	-17-40-52.3	1.09908	0.72538	11.873	-4.0	15.2	0.735	-0.6	249.6	346.0	9.9	40.2W		
MAR 12	20 54 19.0	-17-10 -1.7	1.11275	0.72562	11.800	-4.0	15.0	0.741	-0.5	254.9	345.3	13.1	39.8W		
MAR 14	21 3 59.6	-16-37-13.9	1.12634	0.72586	11.727	-3.9	14.8	0.747	-0.4	260.3	344.6	16.3	39.4W		
MAR 16	21 13 37.4	-16 -2-33.0	1.13984	0.72608	11.653	-3.9	14.6	0.753	-0.3	265.6	343.9	19.5	39.0W		
MAR 18	21 23 12.3	-15-26 -2.8	1.15326	0.72630	11.577	-3.9	14.5	0.759	-0.3	271.0	343.2	22.6	38.6W		
MAR 20	21 32 44.4	-14-47-47.2	1.16659	0.72651	11.499	-3.9	14.3	0.765	-0.2	276.3	342.6	25.8	38.2W		
MAR 22	21 42 13.5	-14 -7-50.6	1.17982	0.72671	11.417	-3.9	14.1	0.770	-0.1	281.7	342.0	29.0	37.8W		
MAR 24	21 51 39.8	-13-26-17.4	1.19296	0.72690	11.331	-3.9	14.0	0.776	-0.1	287.0	341.4	32.2	37.4W		
MAR 26	22 1 3.0	-12-43-12.4	1.20600	0.72708	11.241	-3.9	13.8	0.782	0.0	292.4	340.9	35.3	37.0W		
MAR 28	22 10 23.4	-11-58-40.7	1.21893	0.72725	11.149	-3.9	13.7	0.787	0.0	297.7	340.4	38.5	36.6W		
MAR 30	22 19 40.9	-11-12-47.1	1.23176	0.72740	11.055	-3.9	13.5	0.793	0.1	303.1	339.9	41.7	36.2W		
APR 1	22 28 55.6	-10-25-36.9	1.24447	0.72754	10.959	-3.9	13.4	0.798	0.1	308.5	339.5	44.8	35.8W		
APR 3	22 38 7.6	-9-37-15.3	1.25707	0.72767	10.862	-3.9	13.3	0.803	0.2	313.8	339.1	48.0	35.3W		
APR 5	22 47 17.1	-8-47-47.3	1.26956	0.72779	10.765	-3.9	13.1	0.809	0.2	319.2	338.7	51.2	34.9W		
APR 7	22 56 24.1	-7-57-18.4	1.28194	0.72789	10.667	-3.9	13.0	0.814	0.3	324.6	338.4	54.3	34.5W		
APR 9	23 5 28.9	-7 -5-53.8	1.29421	0.72798	10.569	-3.9	12.9	0.819	0.3	329.9	338.1	57.5	34.0W		
APR 11	23 14 31.7	-6-13-38.9	1.30636	0.72805	10.471	-3.8	12.8	0.824	0.3	335.3	337.9	60.7	33.6W		
APR 13	23 23 32.7	-5-20-38.8	1.31840	0.72811	10.372	-3.8	12.7	0.829	0.4	340.7	337.7	63.8	33.2W		
APR 15	23 32 32.0	-4-26-58.7	1.33032	0.72815	10.273	-3.8	12.5	0.834	0.4	346.1	337.5	67.0	32.7W		
APR 17	23 41 30.1	-3-32-43.7	1.34213	0.72818	10.171	-3.8	12.4	0.839	0.4	351.4	337.3	70.2	32.3W		
APR 19	23 50 27.2	-2-37-58.8	1.35382	0.72820	10.066	-3.8	12.3	0.844	0.4	356.8	337.2	73.3	31.8W		
APR 21	23 59 23.5	-1-42-49.1	1.36538	0.72820	9.956	-3.8	12.2	0.848	0.5	2.2	337.2	76.5	31.3W		
APR 23	0 8 19.3	0-47-20.0	1.37682	0.72818	9.842	-3.8	12.1	0.853	0.5	7.6	337.2	79.6	30.9W		
APR 25	0 17 14.9	0 8 23.2	1.38812	0.72815	9.723	-3.8	12.0	0.858	0.5	13.0	337.2	82.8	30.4W		
APR 27	0 26 10.5	1 4 14.9	1.39928	0.72810	9.602	-3.8	11.9	0.862	0.5	18.3	337.2	86.0	29.9W		
APR 29	0 35 6.4	2 0 9.7	1.41030	0.72804	9.478	-3.8	11.8	0.866	0.5	23.7	337.3	89.1	29.5W		
MAY 1	0 44 2.9	2 56 2.3	1.42117	0.72797	9.352	-3.8	11.7	0.871	0.5	29.1	337.4	92.3	29.0W		
MAY 3	0 53 0.2	3 51 47.2	1.43190	0.72788	9.224	-3.8	11.7	0.875	0.5	34.5	337.6	95.4	28.5W		
MAY 5	1 1 58.6	4 47 18.8	1.44248	0.72777	9.094	-3.8	11.6	0.879	0.5	39.9	337.7	98.6	28.0W		
MAY 7	1 10 58.4	5 42 31.7	1.45291	0.72766	8.964	-3.8	11.5	0.884	0.5	45.2	338.0	101.8	27.6W		
MAY 9	1 19 59.9	6 37 20.3	1.46319	0.72753	8.833	-3.8	11.4	0.888	0.5	50.6	338.2	104.9	27.1W		
MAY 11	1 29 3.3	7 31 39.2	1.47332	0.72738	8.701	-3.8	11.3	0.892	0.5	56.0	338.5	108.1	26.6W		
MAY 13	1 38 8.9	8 25 22.8	1.48329	0.72723	8.569	-3.8	11.3	0.896	0.4	61.4	338.9	111.3	26.1W		
MAY 15	1 47 17.0	9 18 25.9	1.49311	0.72706	8.435	-3.8	11.2	0.900	0.4	66.8	339.2	114.5	25.6W		
MAY 17	1 56 27.9	10 10 43.2	1.50278	0.72688	8.298	-3.8	11.1	0.904	0.4	72.2	339.6	117.6	25.1W		
MAY 19	2 5 41.9	11 2 9.2	1.51228	0.72669	8.157	-3.8	11.0	0.908	0.4	77.6	340.1	120.8	24.6W		
MAY 21	2 14 59.2	11 52 38.5	1.52162	0.72649	8.012	-3.8	11.0	0.911	0.4	83.0	340.6	124.0	24.1W		
MAY 23	2 24 19.9	12 42 5.1	1.53079	0.72628	7.862	-3.8	10.9	0.915	0.3	88.3	341.1	127.2	23.6W		
MAY 25	2 33 44.4	13 30 23.5	1.53978	0.72606	7.707	-3.8	10.8	0.919	0.3	93.7	341.6	130.3	23.1W		
MAY 27	2 43 12.7	14 17 27.9	1.54859	0.72583	7.550	-3.8	10.8	0.922	0.3	99.1	342.2	133.5	22.6W		
MAY 29	2 52 45.1	15 3 12.5	1.55722	0.72559	7.389	-3.8	10.7	0.926	0.2	104.5	342.8	136.7	22.1W		
MAY 31	3 2 21.6	15 47 31.7	1.56566	0.72535	7.226	-3.8	10.7	0.929	0.2	109.9	343.5	139.9	21.5W		
JUN 2	3 12 2.4	16 30 19.6	1.57391	0.72510	7.061	-3.8	10.6	0.933	0.2	115.3	344.1	143.1	21.0W		
JUN 4	3 21 47.5	17 11 30.6	1.58198	0.72484	6.895	-3.8	10.5	0.936	0.1	120.7	344.9	146.3	20.5W		
JUN 6	3 31 36.9	17 50 59.2	1.58984	0.72458	6.727	-3.8	10.5	0.939	0.1	126.1	345.6	149.5	20.0W		
JUN 8	3 41 30.8	18 28 39.6	1.59752	0.72432	6.560	-3.8	1								

Date (0 DT)	RA [Mean]			Dec		Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")															
JUL 2	5 45 26.4	23 10 39.4	1.67385	0.72113	4.386	-3.8	10.0	0.974	-0.5	196.3	357.5	191.2	13.1W			
JUL 4	5 56 4.8	23 17 56.2	1.67880	0.72089	4.191	-3.8	9.9	0.976	-0.5	201.7	358.6	194.4	12.5W			
JUL 6	6 6 44.4	23 22 30.0	1.68353	0.72066	3.996	-3.8	9.9	0.978	-0.5	207.1	359.6	197.6	12.0W			
JUL 8	6 17 24.8	23 24 19.5	1.68803	0.72044	3.802	-3.8	9.9	0.980	-0.6	212.5	0.6	200.8	11.5W			
JUL 10	6 28 5.5	23 23 24.0	1.69231	0.72022	3.610	-3.8	9.9	0.982	-0.6	218.0	1.7	204.1	10.9W			
JUL 12	6 38 46.2	23 19 43.3	1.69657	0.72000	3.418	-3.8	9.8	0.984	-0.6	223.4	2.7	207.3	10.4W			
JUL 14	6 49 26.3	23 13 17.6	1.70021	0.71982	3.226	-3.8	9.8	0.985	-0.7	228.8	3.7	210.5	9.8W			
JUL 16	7 0 5.5	23 4 7.5	1.70382	0.71964	3.032	-3.8	9.8	0.987	-0.7	234.2	4.7	213.8	9.3W			
JUL 18	7 10 43.4	22 52 14.1	1.70721	0.71946	2.837	-3.8	9.8	0.988	-0.7	239.6	5.8	217.0	8.7W			
JUL 20	7 21 19.5	22 37 38.7	1.71038	0.71930	2.639	-3.8	9.8	0.990	-0.7	245.0	6.7	220.3	8.2W			
JUL 22	7 31 53.5	22 20 23.2	1.71331	0.71915	2.439	-3.8	9.7	0.991	-0.8	250.5	7.7	223.5	7.7W			
JUL 24	7 42 25.0	22 0 30.2	1.71601	0.71902	2.238	-3.8	9.7	0.992	-0.8	255.9	8.7	226.7	7.1W			
JUL 26	7 52 53.6	21 38 2.3	1.71848	0.71890	2.035	-3.8	9.7	0.993	-0.8	261.3	9.6	230.0	6.6W			
JUL 28	8 3 19.2	21 13 2.8	1.72071	0.71879	1.832	-3.8	9.7	0.994	-0.8	266.7	10.5	233.2	6.0W			
JUL 30	8 13 41.2	20 45 35.4	1.72271	0.71870	1.628	-3.8	9.7	0.995	-0.8	272.2	11.4	236.5	5.5W			
AUG 1	8 23 59.6	20 15 44.0	1.72448	0.71862	1.425	-3.8	9.7	0.996	-0.8	277.6	12.3	239.7	5.0W			
AUG 3	8 34 14.1	19 43 32.7	1.72601	0.71856	1.223	-3.8	9.7	0.997	-0.8	283.0	13.1	243.0	4.4W			
AUG 5	8 44 24.4	19 9 5.9	1.72730	0.71851	1.023	-3.8	9.7	0.998	-0.8	288.4	14.0	246.2	3.9W			
AUG 7	8 54 30.6	18 32 28.6	1.72837	0.71848	0.827	-3.8	9.7	0.998	-0.8	293.9	14.7	249.5	3.4W			
AUG 9	9 4 32.5	17 53 45.7	1.72921	0.71846	0.633	-3.8	9.7	0.999	-0.8	299.3	15.5	252.7	2.9W			
AUG 11	9 14 30.0	17 13 2.3	1.72984	0.71846	0.442	-3.8	9.6	0.999	-0.8	304.7	16.2	256.0	2.4W			
AUG 13	9 24 23.2	16 30 23.7	1.73024	0.71847	0.251	-3.8	9.6	0.999	-0.8	310.2	16.9	259.2	2.0W			
AUG 15	9 34 12.1	15 45 55.0	1.73042	0.71850	0.061	-3.8	9.6	1.000	-0.8	315.6	17.5	262.4	1.6W			
AUG 17	9 43 56.8	14 59 41.7	1.73038	0.71855	-0.129	-3.8	9.6	1.000	-0.8	321.0	18.1	265.7	1.4W			
AUG 19	9 53 37.4	14 11 49.3	1.73012	0.71861	-0.319	-3.8	9.6	1.000	-0.8	326.5	18.7	268.9	1.3E			
AUG 21	10 3 14.0	13 22 23.3	1.72964	0.71868	-0.509	-3.8	9.6	1.000	-0.8	331.9	19.2	272.2	1.5E			
AUG 23	10 12 46.7	12 31 29.4	1.72894	0.71877	-0.700	-3.8	9.7	1.000	-0.7	337.4	19.8	275.4	1.8E			
AUG 25	10 22 15.7	11 39 13.4	1.72803	0.71887	-0.890	-3.8	9.7	0.999	-0.7	342.8	20.2	278.7	2.2E			
AUG 27	10 31 41.2	10 45 41.2	1.72689	0.71899	-1.080	-3.8	9.7	0.999	-0.7	348.2	20.6	281.9	2.7E			
AUG 29	10 41 3.4	9 50 58.7	1.72553	0.71912	-1.270	-3.8	9.7	0.999	-0.7	353.7	21.0	285.2	3.1E			
AUG 31	10 50 22.5	8 55 11.8	1.72396	0.71927	-1.457	-3.8	9.7	0.998	-0.6	359.1	21.4	288.4	3.6E			
SEP 2	10 59 38.7	7 58 26.2	1.72217	0.71943	-1.641	-3.8	9.7	0.997	-0.6	4.6	21.7	291.6	4.2E			
SEP 4	11 8 52.3	7 0 48.1	1.72017	0.71960	-1.821	-3.8	9.7	0.997	-0.5	10.0	22.0	294.9	4.7E			
SEP 6	11 18 3.6	6 2 23.2	1.71796	0.71978	-1.997	-3.8	9.7	0.996	-0.5	15.4	22.2	298.1	5.2E			
SEP 8	11 27 12.9	5 3 17.5	1.71556	0.71997	-2.169	-3.8	9.7	0.995	-0.5	20.9	22.4	301.4	5.7E			
SEP 10	11 36 20.4	4 3 36.8	1.71295	0.72018	-2.338	-3.8	9.7	0.994	-0.4	26.3	22.6	304.6	6.2E			
SEP 12	11 45 26.6	3 3 26.8	1.71016	0.72039	-2.505	-3.8	9.8	0.993	-0.4	31.8	22.7	307.8	6.8E			
SEP 14	11 54 31.7	2 2 53.0	1.70717	0.72061	-2.670	-3.8	9.8	0.992	-0.3	37.2	22.8	311.0	7.3E			
SEP 16	12 3 36.1	1 2 1.3	1.70399	0.72084	-2.834	-3.8	9.8	0.991	-0.2	42.7	22.8	314.3	7.8E			
SEP 18	12 12 40.2	0 0 57.3	1.70062	0.72108	-2.997	-3.8	9.8	0.990	-0.2	48.1	22.8	317.5	8.3E			
SEP 20	12 21 44.3	-1 0 13.2	1.69707	0.72133	-3.160	-3.8	9.8	0.988	-0.1	53.6	22.8	320.7	8.8E			
SEP 22	12 30 48.7	-2 1 -24.3	1.69332	0.72158	-3.322	-3.8	9.9	0.987	-0.1	59.0	22.8	323.9	9.4E			
SEP 24	12 39 53.7	-3 -2 30.0	1.68939	0.72184	-3.484	-3.8	9.9	0.986	0.0	64.5	22.7	327.2	9.9E			
SEP 26	12 48 59.7	-4 -3 24.4	1.68527	0.72210	-3.645	-3.8	9.9	0.984	0.1	69.9	22.5	330.4	10.4E			
SEP 28	12 58 7.1	-5 -4 -1.3	1.68097	0.72237	-3.805	-3.8	9.9	0.982	0.1	75.4	22.3	333.6	10.9E			
SEP 30	13 7 16.0	-6 -4 -14.9	1.67649	0.72264	-3.962	-3.8	10.0	0.981	0.2	80.8	22.1	336.8	11.4E			
OCT 2	13 16 27.0	-7 -3 -58.9	1.67182	0.72291	-4.115	-3.8	10.0	0.979	0.3	86.3	21.9	340.0	12.0E			
OCT 4	13 25 40.2	-8 -3 -7.1	1.66698	0.72318	-4.264	-3.8	10.0	0.977	0.3	91.7	21.6	343.2	12.5E			
OCT 6	13 34 55.9	-9 -1 -33.4	1.66197	0.72345	-4.409	-3.8	10.0	0.975	0.4	97.2	21.3	346.4	13.0E			
OCT 8	13 44 14.6	-9 -59 -11.6	1.65680	0.72372	-4.551	-3.8	10.1	0.973	0.5	102.6	20.9	349.6	13.5E			
OCT 10	13 53 36.4	-10 -55 -55.5	1.65146	0.72399	-4.690	-3.8	10.1	0.971	0.5	108.1	20.5	352.8	14.0E			
OCT 12	14 3 1.6	-11 -51 -39.2	1.64596	0.72426	-4.826	-3.8	10.1	0.969	0.6	113.5	20.0	356.0	14.5E			
OCT 14	14 12 30.7	-12 -46 -16.5	1.64031	0.72453	-4.960	-3.8	10.2	0.967	0.7	119.0	19.6	359.2	15.0E			
OCT 16	14 22 3.7	-13 -39 -41.1	1.63451	0.72479	-5.094	-3.8	10.2	0.965	0.8	124.4	19.1	2.4	15.5E			
OCT 18	14 31 41.0	-14 -31 -46.9	1.62855	0.72505	-5.226	-3.8	10.2	0.963	0.8	129.9	18.5	5.6	16.0E			
OCT 20	14 41 22.7	-15 -22 -27.4	1.62243	0.72530	-5.358	-3.8	10.3	0.960	0.9	135.3	17.9	8.8	16.5E			
OCT 22	14 51 9.1	-16 -11 -36.2	1.61617	0.72554	-5.490	-3.8	10.3	0.958	1.0	140.8	17.3	12.0	17.0E			
OCT 24	15 1 0.2	-16 -59 -7.0	1.60975	0.72578	-5.623	-3.8	10.4	0.955	1.0	146.2	16.6	15.2	17.5E			
OCT 26	15 10 56.2	-17 -44 -53.3	1.60318	0.72601	-5.756	-3.8	10.4	0.953	1.1	151.7	15.9	18.3	18.0E			
OCT 28	15 20 57.1	-18 -28 -48.7	1.59645	0.72623	-5.887	-3.8	10.5	0.950	1.2	157.1	15.2	21.5	18.5E			
OCT 30	15 31 3.0	-19 -10 -47.0	1.58958	0.72645	-6.017	-3.8	10.5	0.948	1.2	162.6	14.4	24.7	19.0E			
NOV 1	15 41 13.8	-19 -50 -41.9	1.58256	0.72665	-6.143	-3.8	10.5	0.945	1.3	168.0	13.6	27.9	19.5E			
NOV 3	15 51 29.5	-20 -28 -27.3	1.57539	0.72684	-6.265	-3.8	10.6	0.942	1.4	173.5	12.8	31.1	20.0E			
NOV 5	16 1 49.9	-21 -3 -57.2	1.56808	0.72703	-6.385	-3.8	10.6	0.939	1.4	178.9	12.0	34.2	20.5E			
NOV 7	16 12 15.0	-21 -37 -6.2	1.56064	0.72720	-6.501	-3.8	10.7	0.937	1.5	184.4	11.1	37.4	20.9E			
NOV 9	16 22 44.6	-22 -7 -48.8	1.55306	0.72736	-6.616	-3.8	10.7	0.934	1.5	189.8	10.2	40.6	21.4E			
NOV 11	16 33 18.5	-22 -36 0.0	1.54536	0.72750	-6.729	-3.8	10.8	0.931	1.6	195.3	9.2	43.7	21.9E			
NOV 13	16 43 56.4	-23 -1 -35.1	1.53752	0.72763	-6.840	-3.8	10.9	0.928	1.6	200.7	8.3	46.9	22.4E			
NOV 15	16 54 38.0	-23 -24 -29.5	1.52956	0.72775	-6.951	-3.8	10.9	0.925	1.7	206.2	7.3	50.1	22.9E			
NOV 17	17 5 23.1	-23 -44 -39.2	1.52146	0.72786	-7.062	-3.8	11.0	0.921	1.7	211.6	6.3	53.2	23.3E			
NOV 19	17 16 11.1	-24 -2 -0.2	1.51324	0.72795	-7.173	-3.8	11.0	0.918	1.8	217.1	5.3	56.4	23.8E			
NOV 21	17 27 1.8	-24 -16 -29.3	1.50489	0.72803	-7.286	-3.8	11.1	0.915	1.8	222.5	4.2	59.6	24.3E			
NOV 23	17 37 54.5	-24 -28 -3.5	1.49641	0.72809	-7.400	-3.8	11.2	0.912	1.8	228.0	3.2	62.7	24.7E			
NOV 25	17 48 48.9	-24 -36 -40.6	1.48780	0.72814	-7.514	-3.8	11.2	0.908	1.9	233.4	2.1	65.9	25.2E			
NOV 27	17 59 44.4	-24 -42 -18.8	1.47905	0.72818	-7.629	-3.8	11.3	0.905	1.9	238.9	1.1	69.0	25.7E			
NOV 29	18 10 40.4	-24 -44 -56.8	1.47017	0.72820	-7.742	-3.8	11.4	0.901	1.9	244.3	0.0	72.2	26.1E			
DEC 1	18 21 36.3	-24 -44 -34.0	1.46117	0.72820	-7.852	-3.8	11.4	0.898	1.9	249.8	359.0	75.4	26.6E			
DEC 3	18 32 31.5	-24 -41 -10.1	1.45203	0.72819	-7.961	-3.8	11.5	0.894	1.9	255.2	357.9	78.5	27.0E			
DEC 5	18 43 25.6	-24 -34 -45.8	1.44278	0.72816	-8.067	-3.8	11.6	0.890	1.9	260.7	356.8	81.7	27.5E			
DEC 7	18 54 18.0	-24 -25 -22.2	1.43340	0.72812	-8.171	-3.8	11.6	0.887	1.9	266.1	355.8	84.9	27.9E			
DEC 9	19 5 8.2	-24 -13 -0.9	1.42390	0.72807	-8.273	-3.8	11.									

Date (0 DT)	RA (h m s)	[Mean] Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	21 9 51.9	-18-14-22.1	1.30063	0.72635	-9.530	-3.9	12.8	0.831	1.5	336.7	344.1	126.0	33.6E
JAN 4	21 19 40.9	-17-29-21.8	1.28956	0.72613	-9.633	-3.9	12.9	0.827	1.4	342.1	343.4	129.2	34.0E
JAN 6	21 29 24.2	-16-42-28.9	1.27837	0.72590	-9.735	-3.9	13.1	0.822	1.4	347.5	342.8	132.4	34.4E
JAN 8	21 39 1.6	-15-53-49.8	1.26707	0.72567	-9.835	-3.9	13.2	0.817	1.3	353.0	342.2	135.6	34.8E
JAN 10	21 48 33.4	-15 -3-30.8	1.25565	0.72543	-9.935	-3.9	13.3	0.812	1.2	358.4	341.6	138.8	35.2E
JAN 12	21 57 59.6	-14-11-38.1	1.24412	0.72518	-10.034	-3.9	13.4	0.807	1.1	3.8	341.0	142.0	35.6E
JAN 14	22 7 20.3	-13-18-18.0	1.23247	0.72492	-10.133	-3.9	13.5	0.801	1.0	9.2	340.5	145.1	36.0E
JAN 16	22 16 35.8	-12-23-36.6	1.22071	0.72466	-10.234	-3.9	13.7	0.796	0.9	14.6	340.1	148.3	36.4E
JAN 18	22 25 46.3	-11-27-39.9	1.20883	0.72440	-10.336	-3.9	13.8	0.791	0.8	19.9	339.6	151.5	36.8E
JAN 20	22 34 52.0	-10-30-34.3	1.19683	0.72413	-10.441	-3.9	13.9	0.785	0.7	25.3	339.2	154.7	37.2E
JAN 22	22 43 53.1	-9-32-26.1	1.18471	0.72386	-10.548	-3.9	14.1	0.780	0.6	30.7	338.9	157.9	37.6E
JAN 24	22 52 49.8	-8-33-21.6	1.17246	0.72359	-10.656	-3.9	14.2	0.774	0.5	36.1	338.5	161.1	38.0E
JAN 26	23 1 42.2	-7-33-27.1	1.16009	0.72332	-10.764	-4.0	14.4	0.768	0.4	41.5	338.2	164.3	38.3E
JAN 28	23 10 30.7	-6-32-48.9	1.14760	0.72305	-10.871	-4.0	14.5	0.762	0.3	46.8	338.0	167.5	38.7E
JAN 30	23 19 15.4	-5-31-33.1	1.13498	0.72278	-10.976	-4.0	14.7	0.756	0.1	52.2	337.8	170.7	39.1E
FEB 1	23 27 56.7	-4-29-45.8	1.12224	0.72251	-11.081	-4.0	14.9	0.750	0.0	57.6	337.6	174.0	39.4E
FEB 3	23 36 34.7	-3-27-33.1	1.10938	0.72224	-11.183	-4.0	15.0	0.744	-0.1	62.9	337.4	177.2	39.8E
FEB 5	23 45 9.7	-2-25 -0.9	1.09641	0.72197	-11.283	-4.0	15.2	0.737	-0.3	68.2	337.3	180.4	40.1E
FEB 7	23 53 42.1	-1-22-15.1	1.08332	0.72171	-11.381	-4.0	15.4	0.731	-0.4	73.6	337.2	183.6	40.5E
FEB 9	0 2 12.0	0-19-21.4	1.07011	0.72146	-11.478	-4.0	15.6	0.724	-0.5	78.9	337.2	186.8	40.8E
FEB 11	0 10 39.7	0 43 34.7	1.05680	0.72121	-11.574	-4.0	15.8	0.718	-0.7	84.2	337.1	190.0	41.2E
FEB 13	0 19 5.5	1 46 27.8	1.04338	0.72097	-11.669	-4.0	16.0	0.711	-0.8	89.5	337.2	193.3	41.5E
FEB 15	0 27 29.7	2 49 12.5	1.02984	0.72073	-11.764	-4.0	16.2	0.704	-1.0	94.8	337.2	196.5	41.8E
FEB 17	0 35 52.6	3 51 43.5	1.01620	0.72050	-11.861	-4.0	16.4	0.697	-1.1	100.1	337.3	199.7	42.1E
FEB 19	0 44 14.3	4 53 55.2	1.00244	0.72029	-11.960	-4.0	16.6	0.689	-1.3	105.4	337.4	202.9	42.4E
FEB 21	0 52 35.0	5 55 42.0	0.98857	0.72008	-12.059	-4.0	16.9	0.682	-1.4	110.7	337.5	206.2	42.7E
FEB 23	1 0 54.9	6 56 58.4	0.97459	0.71988	-12.157	-4.1	17.1	0.674	-1.6	116.0	337.7	209.4	43.0E
FEB 25	1 9 14.2	7 57 38.8	0.96049	0.71969	-12.255	-4.1	17.4	0.667	-1.8	121.2	337.9	212.7	43.3E
FEB 27	1 17 33.0	8 57 37.7	0.94628	0.71951	-12.350	-4.1	17.6	0.659	-1.9	126.5	338.1	215.9	43.6E
FEB 29	1 25 51.4	9 56 49.7	0.93196	0.71935	-12.442	-4.1	17.9	0.651	-2.1	131.7	338.4	219.1	43.8E
MAR 2	1 34 9.4	10 55 9.3	0.91753	0.71920	-12.532	-4.1	18.2	0.643	-2.2	136.9	338.7	222.4	44.1E
MAR 4	1 42 27.2	11 52 31.3	0.90301	0.71906	-12.618	-4.1	18.5	0.634	-2.4	142.1	339.0	225.6	44.3E
MAR 6	1 50 44.8	12 48 50.5	0.88839	0.71893	-12.699	-4.1	18.8	0.626	-2.6	147.3	339.4	228.9	44.5E
MAR 8	1 59 2.1	13 44 1.8	0.87367	0.71882	-12.776	-4.1	19.1	0.617	-2.7	152.5	339.7	232.1	44.7E
MAR 10	2 7 19.3	14 38 0.5	0.85887	0.71872	-12.849	-4.1	19.4	0.608	-2.9	157.6	340.1	235.3	44.9E
MAR 12	2 15 36.3	15 30 42.0	0.84399	0.71864	-12.919	-4.1	19.8	0.599	-3.0	162.8	340.6	238.6	45.1E
MAR 14	2 23 53.1	16 22 1.9	0.82903	0.71857	-12.986	-4.2	20.1	0.590	-3.2	167.9	341.0	241.8	45.3E
MAR 16	2 32 9.5	17 11 55.9	0.81399	0.71852	-13.051	-4.2	20.5	0.581	-3.3	173.0	341.5	245.1	45.5E
MAR 18	2 40 25.4	18 0 19.6	0.79888	0.71848	-13.114	-4.2	20.9	0.571	-3.5	178.1	342.0	248.3	45.6E
MAR 20	2 48 40.5	18 47 8.6	0.78370	0.71846	-13.176	-4.2	21.3	0.562	-3.6	183.2	342.5	251.6	45.7E
MAR 22	2 56 54.6	19 32 18.9	0.76844	0.71845	-13.234	-4.2	21.7	0.551	-3.8	188.2	343.1	254.8	45.8E
MAR 24	3 5 7.4	20 15 46.2	0.75312	0.71846	-13.289	-4.2	22.2	0.541	-3.9	193.3	343.6	258.1	45.9E
MAR 26	3 13 18.3	20 57 26.9	0.73774	0.71848	-13.338	-4.2	22.6	0.531	-4.0	198.3	344.2	261.3	46.0E
MAR 28	3 21 27.0	21 37 17.3	0.72231	0.71852	-13.382	-4.2	23.1	0.520	-4.2	203.2	344.8	264.6	46.0E
MAR 30	3 29 32.8	22 15 14.2	0.70683	0.71858	-13.418	-4.2	23.6	0.509	-4.3	208.2	345.4	267.8	46.0E
APR 1	3 37 35.0	22 51 14.4	0.69132	0.71864	-13.446	-4.3	24.1	0.498	-4.4	213.1	346.0	271.1	46.0E
APR 3	3 45 33.1	23 25 15.5	0.67577	0.71873	-13.465	-4.3	24.7	0.486	-4.5	218.0	346.7	274.3	45.9E
APR 5	3 53 26.2	23 57 14.9	0.66021	0.71883	-13.474	-4.3	25.3	0.475	-4.7	222.8	347.3	277.6	45.9E
APR 7	4 1 13.5	24 27 11.1	0.64465	0.71894	-13.473	-4.3	25.9	0.462	-4.8	227.6	347.9	280.8	45.7E
APR 9	4 8 54.2	24 55 2.7	0.62909	0.71907	-13.460	-4.3	26.5	0.450	-4.9	232.4	348.6	284.0	45.6E
APR 11	4 16 27.3	25 20 49.1	0.61356	0.71921	-13.438	-4.3	27.2	0.437	-5.0	237.1	349.2	287.3	45.4E
APR 13	4 23 51.8	25 44 29.8	0.59805	0.71936	-13.406	-4.3	27.9	0.424	-5.0	241.8	349.9	290.5	45.2E
APR 15	4 31 6.6	26 6 4.6	0.58259	0.71953	-13.364	-4.3	28.6	0.411	-5.1	246.5	350.5	293.8	44.9E
APR 17	4 38 10.4	26 25 33.5	0.56718	0.71971	-13.311	-4.4	29.4	0.397	-5.2	251.0	351.2	297.0	44.6E
APR 19	4 45 2.0	26 42 56.8	0.55185	0.71990	-13.245	-4.4	30.2	0.383	-5.2	255.6	351.8	300.2	44.2E
APR 21	4 51 39.7	26 58 15.3	0.53659	0.72010	-13.165	-4.4	31.1	0.368	-5.3	260.0	352.4	303.5	43.7E
APR 23	4 58 2.1	27 11 29.8	0.52144	0.72031	-13.068	-4.4	32.0	0.353	-5.3	264.4	353.0	306.7	43.2E
APR 25	5 4 7.3	27 22 41.7	0.50641	0.72053	-12.953	-4.4	33.0	0.338	-5.4	268.8	353.6	309.9	42.7E
APR 27	5 9 53.5	27 31 52.2	0.49152	0.72075	-12.816	-4.4	34.0	0.322	-5.4	273.0	354.1	313.2	42.0E
APR 29	5 15 18.9	27 39 2.8	0.47681	0.72099	-12.654	-4.4	35.0	0.306	-5.4	277.2	354.6	316.4	41.3E
MAY 1	5 20 21.2	27 44 14.8	0.46230	0.72124	-12.466	-4.4	36.1	0.289	-5.4	281.3	355.1	319.6	40.5E
MAY 3	5 24 58.5	27 47 29.4	0.44802	0.72149	-12.247	-4.4	37.2	0.272	-5.3	285.3	355.5	322.8	39.6E
MAY 5	5 29 8.4	27 48 48.0	0.43402	0.72174	-11.994	-4.4	38.5	0.254	-5.3	289.2	355.9	326.1	38.6E
MAY 7	5 32 48.9	27 48 11.2	0.42033	0.72200	-11.705	-4.4	39.7	0.236	-5.2	293.0	356.3	329.3	37.4E
MAY 9	5 35 57.8	27 45 39.6	0.40699	0.72227	-11.377	-4.4	41.0	0.218	-5.1	296.6	356.6	332.5	36.2E
MAY 11	5 38 32.9	27 41 12.6	0.39406	0.72254	-11.010	-4.4	42.4	0.199	-5.0	300.1	356.9	335.7	34.8E
MAY 13	5 40 32.1	27 34 48.6	0.38157	0.72281	-10.599	-4.4	43.7	0.180	-4.9	303.5	357.1	338.9	33.3E
MAY 15	5 41 53.4	27 26 24.9	0.36959	0.72308	-10.141	-4.3	45.2	0.161	-4.7	306.8	357.2	342.1	31.7E
MAY 17	5 42 35.0	27 15 57.9	0.35816	0.72335	-9.631	-4.3	46.6	0.143	-4.6	309.9	357.3	345.3	29.9E
MAY 19	5 42 35.3	27 3 22.7	0.34736	0.72363	-9.067	-4.3	48.0	0.123	-4.4	312.9	357.3	348.5	28.0E
MAY 21	5 41 53.3	26 48 33.7	0.33724	0.72390	-8.442	-4.3	49.5	0.104	-4.1	315.7	357.2	351.7	25.9E
MAY 23	5 40 28.6	26 31 24.9	0.32788	0.72417	-7.755	-4.2	50.9	0.086	-3.8	318.3	357.0	354.9	23.6E
MAY 25	5 38 21.6	26 11 50.5	0.31935	0.72444	-7.002	-4.2	52.3	0.069	-3.5	320.8	356.8	358.1	21.2E
MAY 27	5 35 33.6	25 49 46.1	0.31172	0.72470	-6.184	-4.1	53.5	0.053	-3.2	323.1	356.6	3.3	18.6E
MAY 29	5 32 7.3	25 25 9.7	0.30508	0.72496	-5.300	-4.0	54.7	0.038	-2.9	325.2	356.2	4.5	15.9E
MAY 31	5 28 6.6	24 58 3.7	0.29950	0.72521	-4.356	-4.0	55.7	0.025	-2.5	327.3	355.9	7.7	13.0E
JUN 2	5 23 36.7	24 28 36.1	0.29504	0.72546	-3.356	-3.9	56.6	0.015	-2.1	329.2	355.4	10.9	10.0E
JUN 4	5 18 44.1	23 57 1.8	0.29176	0.72571	-2.314	-3.8	57.2	0.007	-1.6	331.0	355.0	14.1	6.9E
JUN 6	5 13 36.5	23 23 43.4	0.28970	0.72594	-1.241	-3.7	57.6	0.002	-1.2	332.7	354.5	17.2	3.8E
JUN 8	5 8 22.1	22 49 10.5	0.28890	0.72617	-0.155	-3.6	57.8	0.000	-0.7				

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	4 34	49.2	17 43 52.3	0.36573	0.72803	9.969	-4.3	45.6	0.153	3.3	1.5	350.9	58.5	31.0W
JUL 4	4 35	51.1	17 37 14.2	0.37753	0.72810	10.445	-4.3	44.2	0.172	3.4	4.7	351.0	61.6	32.7W
JUL 6	4 37	27.4	17 33 26.1	0.38984	0.72816	10.869	-4.3	42.8	0.190	3.5	8.0	351.1	64.8	34.2W
JUL 8	4 39	36.3	17 32 13.2	0.40261	0.72820	11.243	-4.4	41.5	0.209	3.6	11.5	351.3	67.9	35.6W
JUL 10	4 42	15.9	17 33 19.4	0.41580	0.72822	11.574	-4.4	40.1	0.227	3.7	15.1	351.6	71.1	36.9W
JUL 12	4 45	24.4	17 36 28.2	0.42934	0.72823	11.865	-4.4	38.9	0.245	3.8	18.8	351.8	74.3	38.0W
JUL 14	4 48	59.9	17 41 23.2	0.44319	0.72823	12.121	-4.4	37.7	0.262	3.8	22.6	352.2	77.4	39.1W
JUL 16	4 53	0.7	17 47 47.9	0.45733	0.72821	12.346	-4.4	36.5	0.279	3.8	26.5	352.5	80.6	40.0W
JUL 18	4 57	25.1	17 55 26.7	0.47170	0.72817	12.544	-4.4	35.4	0.296	3.8	30.6	353.0	83.8	40.9W
JUL 20	5 2	11.5	18 4 4.3	0.48630	0.72812	12.718	-4.4	34.3	0.312	3.8	34.7	353.4	86.9	41.6W
JUL 22	5 7	18.5	18 13 26.3	0.50108	0.72806	12.870	-4.3	33.3	0.328	3.8	38.9	353.9	90.1	42.3W
JUL 24	5 12	44.8	18 23 18.9	0.51602	0.72798	13.004	-4.3	32.3	0.343	3.8	43.1	354.4	93.2	42.9W
JUL 26	5 18	29.1	18 33 29.2	0.53111	0.72788	13.120	-4.3	31.4	0.358	3.7	47.5	354.9	96.4	43.4W
JUL 28	5 24	30.4	18 43 45.1	0.54633	0.72778	13.222	-4.3	30.5	0.372	3.7	51.9	355.5	99.6	43.9W
JUL 30	5 30	47.8	18 53 55.1	0.56165	0.72766	13.308	-4.3	29.7	0.386	3.6	56.3	356.1	102.7	44.3W
AUG 1	5 37	20.1	19 3 48.1	0.57706	0.72752	13.379	-4.3	28.9	0.400	3.6	60.9	356.7	105.9	44.6W
AUG 3	5 44	6.7	19 13 13.7	0.59255	0.72737	13.436	-4.3	28.2	0.413	3.5	65.4	357.4	109.1	44.9W
AUG 5	5 51	6.5	19 22 1.5	0.60810	0.72721	13.478	-4.3	27.4	0.426	3.4	70.0	358.1	112.2	45.2W
AUG 7	5 58	18.8	19 30 2.3	0.62368	0.72704	13.507	-4.3	26.8	0.439	3.3	74.7	358.8	115.4	45.4W
AUG 9	6 5	42.7	19 37 7.3	0.63930	0.72686	13.526	-4.3	26.1	0.451	3.2	79.4	359.5	118.6	45.5W
AUG 11	6 13	17.4	19 43 8.5	0.65493	0.72666	13.534	-4.2	25.5	0.463	3.1	84.2	0.2	121.8	45.6W
AUG 13	6 21	2.3	19 47 58.4	0.67056	0.72646	13.534	-4.2	24.9	0.475	3.0	89.0	1.0	124.9	45.7W
AUG 15	6 28	56.4	19 51 30.2	0.68619	0.72624	13.527	-4.2	24.3	0.486	2.9	93.8	1.8	128.1	45.8W
AUG 17	6 36	59.1	19 53 37.6	0.70181	0.72602	13.514	-4.2	23.8	0.497	2.8	98.6	2.5	131.3	45.8W
AUG 19	6 45	9.7	19 54 15.0	0.71741	0.72578	13.495	-4.2	23.3	0.508	2.7	103.5	3.3	134.5	45.8W
AUG 21	6 53	27.5	19 53 17.3	0.73298	0.72554	13.472	-4.2	22.8	0.519	2.6	108.4	4.1	137.7	45.8W
AUG 23	7 1	52.1	19 50 39.9	0.74853	0.72530	13.446	-4.2	22.3	0.529	2.5	113.4	4.9	140.8	45.7W
AUG 25	7 10	22.7	19 46 18.9	0.76405	0.72504	13.416	-4.2	21.8	0.540	2.4	118.3	5.7	144.0	45.6W
AUG 27	7 18	59.0	19 40 10.8	0.77952	0.72478	13.382	-4.1	21.4	0.550	2.3	123.3	6.5	147.2	45.5W
AUG 29	7 27	40.2	19 32 12.3	0.79496	0.72452	13.344	-4.1	21.0	0.560	2.1	128.3	7.3	150.4	45.4W
AUG 31	7 36	26.0	19 22 20.8	0.81035	0.72425	13.300	-4.1	20.6	0.569	2.0	133.4	8.1	153.6	45.3W
SEP 2	7 45	15.9	19 10 33.7	0.82568	0.72398	13.249	-4.1	20.2	0.579	1.9	138.4	8.9	156.8	45.1W
SEP 4	7 54	9.4	18 56 49.2	0.84095	0.72371	13.193	-4.1	19.8	0.588	1.8	143.5	9.7	160.0	44.9W
SEP 6	8 3	5.9	18 41 6.2	0.85616	0.72344	13.131	-4.1	19.5	0.597	1.7	148.6	10.5	163.2	44.8W
SEP 8	8 12	5.0	18 23 24.1	0.87129	0.72316	13.065	-4.1	19.2	0.606	1.6	153.7	11.3	166.4	44.5W
SEP 10	8 21	6.3	18 3 42.6	0.88634	0.72289	12.994	-4.1	18.8	0.615	1.5	158.8	12.1	169.6	44.3W
SEP 12	8 30	9.3	17 42 2.1	0.90130	0.72262	12.920	-4.1	18.5	0.623	1.3	164.0	12.8	172.8	44.1W
SEP 14	8 39	13.5	17 18 23.4	0.91618	0.72235	12.843	-4.1	18.2	0.632	1.2	169.1	13.5	176.0	43.8W
SEP 16	8 48	18.7	16 52 47.6	0.93098	0.72208	12.765	-4.0	17.9	0.640	1.1	174.3	14.3	179.2	43.6W
SEP 18	8 57	24.5	16 25 16.2	0.94567	0.72182	12.685	-4.0	17.6	0.649	1.0	179.5	15.0	182.5	43.3W
SEP 20	9 6	30.5	15 55 51.3	0.96028	0.72156	12.605	-4.0	17.4	0.657	0.9	184.7	15.6	185.7	43.0W
SEP 22	9 15	36.6	15 24 35.1	0.97479	0.72130	12.524	-4.0	17.1	0.665	0.8	189.9	16.3	188.9	42.7W
SEP 24	9 24	42.5	14 51 30.3	0.98921	0.72106	12.443	-4.0	16.9	0.673	0.7	195.1	16.9	192.1	42.4W
SEP 26	9 33	48.0	14 16 39.4	1.00354	0.72082	12.360	-4.0	16.6	0.680	0.6	200.4	17.5	195.4	42.1W
SEP 28	9 42	53.1	13 40 5.3	1.01777	0.72058	12.274	-4.0	16.4	0.688	0.5	205.6	18.1	198.6	41.8W
SEP 30	9 51	57.5	13 1 51.1	1.03189	0.72036	12.185	-4.0	16.2	0.695	0.4	210.9	18.6	201.8	41.5W
OCT 2	10 1	1.3	12 22 0.2	1.04591	0.72015	12.091	-4.0	16.0	0.703	0.4	216.1	19.1	205.0	41.1W
OCT 4	10 10	4.4	11 40 36.3	1.05983	0.71994	11.994	-4.0	15.7	0.710	0.3	221.4	19.6	208.3	40.8W
OCT 6	10 19	6.7	10 57 43.6	1.07362	0.71975	11.893	-4.0	15.5	0.717	0.2	226.7	20.1	211.5	40.4W
OCT 8	10 28	8.2	10 13 26.3	1.08730	0.71956	11.790	-4.0	15.3	0.724	0.1	232.0	20.5	214.7	40.1W
OCT 10	10 37	8.8	9 27 48.8	1.10086	0.71939	11.683	-4.0	15.2	0.731	0.0	237.3	20.9	218.0	39.7W
OCT 12	10 46	8.6	8 40 56.1	1.11429	0.71923	11.574	-4.0	15.0	0.738	0.0	242.6	21.2	221.2	39.3W
OCT 14	10 55	7.6	7 52 52.7	1.12760	0.71909	11.464	-4.0	14.8	0.745	-0.1	247.9	21.5	224.5	39.0W
OCT 16	11 4	5.8	7 3 43.8	1.14078	0.71896	11.353	-4.0	14.6	0.751	-0.1	253.3	21.8	227.7	38.6W
OCT 18	11 13	3.5	6 13 34.5	1.15383	0.71884	11.243	-3.9	14.5	0.758	-0.2	258.6	22.1	231.0	38.2W
OCT 20	11 22	0.7	5 22 29.9	1.16675	0.71873	11.133	-3.9	14.3	0.764	-0.3	264.0	22.3	234.2	37.8W
OCT 22	11 30	57.5	4 30 35.3	1.17955	0.71864	11.024	-3.9	14.1	0.771	-0.3	269.3	22.5	237.4	37.4W
OCT 24	11 39	54.1	3 37 55.9	1.19222	0.71857	10.915	-3.9	14.0	0.777	-0.4	274.7	22.6	240.7	37.0W
OCT 26	11 48	50.7	2 44 36.7	1.20476	0.71851	10.805	-3.9	13.9	0.783	-0.4	280.0	22.7	243.9	36.6W
OCT 28	11 57	47.6	1 50 42.9	1.21718	0.71846	10.692	-3.9	13.7	0.789	-0.4	285.4	22.8	247.2	36.2W
OCT 30	12 6	44.9	0 56 19.9	1.22946	0.71843	10.578	-3.9	13.6	0.795	-0.5	290.8	22.8	250.4	35.8W
NOV 1	12 15	43.0	0 1 33.0	1.24161	0.71842	10.460	-3.9	13.4	0.801	-0.5	296.2	22.8	253.7	35.3W
NOV 3	12 24	42.0	0 53 32.0	1.25363	0.71842	10.340	-3.9	13.3	0.806	-0.5	301.6	22.8	256.9	34.9W
NOV 5	12 33	42.1	-1 48 49.4	1.26550	0.71844	10.218	-3.9	13.2	0.812	-0.5	307.0	22.7	260.2	34.5W
NOV 7	12 42	43.6	-2 44 13.3	1.27723	0.71847	10.092	-3.9	13.1	0.818	-0.6	312.4	22.6	263.4	34.1W
NOV 9	12 51	46.8	-3 39 37.8	1.28882	0.71852	9.965	-3.9	12.9	0.823	-0.6	317.8	22.5	266.7	33.6W
NOV 11	13 0	51.8	-4 34 56.9	1.30025	0.71858	9.836	-3.9	12.8	0.828	-0.6	323.2	22.3	269.9	33.2W
NOV 13	13 9	58.9	-5 30 4.4	1.31154	0.71866	9.707	-3.9	12.7	0.834	-0.6	328.6	22.1	273.2	32.8W
NOV 15	13 19	8.4	-6 24 54.2	1.32268	0.71876	9.578	-3.9	12.6	0.839	-0.6	334.0	21.8	276.4	32.3W
NOV 17	13 28	20.4	-7 19 20.0	1.33367	0.71886	9.450	-3.9	12.5	0.844	-0.6	339.4	21.5	279.7	31.9W
NOV 19	13 37	35.2	-8 13 15.6	1.34451	0.71899	9.324	-3.9	12.4	0.849	-0.6	344.8	21.2	282.9	31.4W
NOV 21	13 46	53.1	-9 6 34.9	1.35521	0.71912	9.200	-3.9	12.3	0.853	-0.6	350.3	20.8	286.1	31.0W
NOV 23	13 56	14.2	-9 59 11.7	1.36576	0.71927	9.076	-3.9	12.2	0.858	-0.6	355.7	20.4	289.4	30.5W
NOV 25	14 5	38.9	-10 50 60.0	1.37618	0.71943	8.951	-3.9	12.1	0.863	-0.6	1.1	19.9	292.6	30.1W
NOV 27	14 15	7.4	-11 41 53.6	1.38644	0.71961	8.826	-3.9	12.0	0.868	-0.5	6.6	19.4	295.9	29.6W
NOV 29	14 24	39.9	-12 31 46.4	1.39656	0.71979	8.699	-3.9	11.9	0.872	-0.5	12.0	18.9	299.1	29.2W
DEC 1	14 34	16.5	-13 20 31.9	1.40654	0.71999	8.570	-3.9	11.9	0.876	-0.5	17.4	18.3	302.3	28.7W
DEC 3	14 43	57.5	-14 8 3.7	1.41636	0.72019	8.440	-3.9	11.8	0.881	-0.5	22.9	17.8	305.6	28.3W
DEC 5	14 53	43.0												

2005 VENUS

Geocentric Planetary Ephemeris

2005 VENUS

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	17 18	13.4	-22-23-38.3	1.54535	0.72405	6.470	-3.8	10.8	0.935	0.1	104.8	5.1	353.8	21.3W
JAN 4	17 29	1.1	-22-38-55.0	1.55275	0.72432	6.339	-3.8	10.7	0.938	0.1	110.2	4.0	357.0	20.9W
JAN 6	17 39	51.1	-22-49-48.2	1.55999	0.72459	6.205	-3.8	10.7	0.941	0.2	115.7	3.0	0.2	20.4W
JAN 8	17 50	42.9	-22-58-45.6	1.56708	0.72485	6.070	-3.8	10.6	0.943	0.2	121.2	2.0	3.4	19.9W
JAN 10	18 1	36.0	-23-4-55.0	1.57401	0.72511	5.935	-3.8	10.6	0.946	0.2	126.6	0.9	6.6	19.5W
JAN 12	18 12	30.0	-23-8-15.2	1.58079	0.72537	5.800	-3.8	10.6	0.949	0.3	132.1	359.8	9.8	19.0W
JAN 14	18 23	24.4	-23-8-45.0	1.58741	0.72561	5.667	-3.8	10.5	0.951	0.3	137.6	358.8	12.9	18.5W
JAN 16	18 34	18.5	-23-6-24.1	1.59388	0.72585	5.536	-3.8	10.5	0.954	0.4	143.0	357.7	16.1	18.1W
JAN 18	18 45	12.1	-23-1-12.7	1.60020	0.72608	5.407	-3.8	10.4	0.956	0.4	148.5	356.7	19.3	17.6W
JAN 20	18 56	4.5	-22-53-11.6	1.60638	0.72630	5.280	-3.8	10.4	0.959	0.4	154.0	355.6	22.5	17.1W
JAN 22	19 6	55.5	-22-42-21.9	1.61240	0.72652	5.153	-3.8	10.4	0.961	0.5	159.4	354.6	25.7	16.7W
JAN 24	19 17	44.4	-22-28-45.5	1.61828	0.72672	5.027	-3.8	10.3	0.963	0.5	164.9	353.6	28.8	16.2W
JAN 26	19 28	31.0	-22-12-24.6	1.62402	0.72691	4.901	-3.8	10.3	0.965	0.5	170.4	352.6	32.0	15.7W
JAN 28	19 39	14.8	-21-53-21.6	1.62961	0.72709	4.775	-3.8	10.2	0.967	0.6	175.9	351.6	35.2	15.2W
JAN 30	19 49	55.4	-21-31-39.7	1.63505	0.72726	4.647	-3.8	10.2	0.969	0.6	181.3	350.6	38.4	14.8W
FEB 1	20 0	32.6	-21-7-22.1	1.64034	0.72742	4.517	-3.8	10.2	0.971	0.6	186.8	349.7	41.5	14.3W
FEB 3	20 11	6.1	-20-40-32.7	1.64548	0.72756	4.385	-3.8	10.1	0.973	0.6	192.3	348.8	44.7	13.8W
FEB 5	20 21	35.7	-20-11-15.7	1.65047	0.72770	4.251	-3.8	10.1	0.975	0.6	197.7	347.9	47.9	13.4W
FEB 7	20 32	1.0	-19-39-35.7	1.65530	0.72781	4.115	-3.8	10.1	0.977	0.7	203.2	347.0	51.0	12.9W
FEB 9	20 42	21.9	-19-5-37.6	1.65998	0.72792	3.977	-3.8	10.1	0.978	0.7	208.7	346.2	54.2	12.4W
FEB 11	20 52	38.2	-18-29-26.6	1.66449	0.72801	3.840	-3.8	10.0	0.980	0.7	214.1	345.4	57.3	11.9W
FEB 13	21 2	49.8	-17-51-8.0	1.66885	0.72808	3.704	-3.8	10.0	0.982	0.7	219.6	344.6	60.5	11.5W
FEB 15	21 12	56.6	-17-10-47.3	1.67305	0.72814	3.569	-3.8	10.0	0.983	0.7	225.1	343.9	63.7	11.0W
FEB 17	21 22	58.7	-16-28-30.1	1.67710	0.72819	3.435	-3.8	10.0	0.984	0.7	230.5	343.2	66.8	10.5W
FEB 19	21 32	56.1	-15-44-22.5	1.68099	0.72822	3.302	-3.8	9.9	0.986	0.7	236.0	342.6	70.0	10.0W
FEB 21	21 42	48.8	-14-58-30.1	1.68473	0.72824	3.169	-3.8	9.9	0.987	0.7	241.5	341.9	73.2	9.6W
FEB 23	21 52	36.8	-14-10-58.8	1.68831	0.72824	3.036	-3.8	9.9	0.988	0.7	246.9	341.3	76.3	9.1W
FEB 25	22 2	20.5	-13-21-54.6	1.69174	0.72822	2.902	-3.8	9.9	0.990	0.7	252.4	340.8	79.5	8.6W
FEB 27	22 11	59.8	-12-31-23.2	1.69501	0.72819	2.766	-3.8	9.8	0.991	0.7	257.8	340.3	82.6	8.1W
MAR 1	22 21	35.0	-11-39-30.6	1.69813	0.72815	2.629	-3.8	9.8	0.992	0.7	263.3	339.8	85.8	7.7W
MAR 3	22 31	6.4	-10-46-22.6	1.70108	0.72809	2.488	-3.8	9.8	0.993	0.7	268.8	339.4	89.0	7.2W
MAR 5	22 40	34.0	-9-52-5.3	1.70388	0.72802	2.344	-3.8	9.8	0.994	0.6	274.2	339.0	92.1	6.7W
MAR 7	22 49	58.3	-8-56-44.6	1.70650	0.72793	2.197	-3.8	9.8	0.995	0.6	279.7	338.6	95.3	6.2W
MAR 9	22 59	19.4	-8-0-26.8	1.70895	0.72782	2.046	-3.8	9.8	0.995	0.6	285.1	338.3	98.5	5.7W
MAR 11	23 8	37.5	-7-3-17.8	1.71123	0.72771	1.894	-3.8	9.8	0.996	0.6	290.6	338.0	101.6	5.3W
MAR 13	23 17	52.9	-6-5-23.8	1.71332	0.72758	1.741	-3.8	9.7	0.997	0.5	296.1	337.8	104.8	4.8W
MAR 15	23 27	6.0	-5-6-50.6	1.71525	0.72743	1.587	-3.8	9.7	0.997	0.5	301.5	337.6	108.0	4.3W
MAR 17	23 36	17.0	-4-7-44.4	1.71699	0.72728	1.434	-3.8	9.7	0.998	0.5	307.0	337.4	111.1	3.9W
MAR 19	23 45	26.3	-3-8-10.9	1.71856	0.72711	1.281	-3.8	9.7	0.998	0.4	312.4	337.3	114.3	3.4W
MAR 21	23 54	34.1	-2-8-16.1	1.71995	0.72693	1.127	-3.8	9.7	0.999	0.4	317.9	337.2	117.5	2.9W
MAR 23	0 3	40.7	-1-8-5.9	1.72116	0.72674	0.973	-3.8	9.7	0.999	0.3	323.3	337.2	120.6	2.5W
MAR 25	0 12	46.6	0-7-45.8	1.72220	0.72654	0.818	-3.8	9.7	0.999	0.3	328.8	337.2	123.8	2.1W
MAR 27	0 21	52.1	0-52-38.4	1.72305	0.72633	0.661	-3.8	9.7	1.000	0.3	334.2	337.2	127.0	1.7W
MAR 29	0 30	57.5	1-53-1.2	1.72373	0.72610	0.502	-3.8	9.7	1.000	0.2	339.7	337.2	130.2	1.4E
MAR 31	0 40	3.3	2-53-16.9	1.72421	0.72587	0.341	-3.8	9.7	1.000	0.2	345.1	337.3	133.3	1.3E
APR 2	0 49	9.6	3-53-19.9	1.72451	0.72564	0.175	-3.8	9.7	1.000	0.1	350.6	337.5	136.5	1.4E
APR 4	0 58	17.0	4-53-4.3	1.72462	0.72539	0.006	-3.8	9.7	1.000	0.1	356.0	337.7	139.7	1.6E
APR 6	1 7	25.6	5-52-24.2	1.72452	0.72514	-0.168	-3.8	9.7	0.999	0.0	1.4	337.9	142.9	1.9E
APR 8	1 16	35.7	6-51-13.6	1.72423	0.72488	-0.344	-3.8	9.7	0.999	-0.1	6.9	338.1	146.1	2.3E
APR 10	1 25	47.8	7-49-26.8	1.72373	0.72462	-0.523	-3.8	9.7	0.999	-0.1	12.3	338.4	149.3	2.8E
APR 12	1 35	2.1	8-46-57.7	1.72302	0.72436	-0.704	-3.8	9.7	0.998	-0.2	17.8	338.8	152.5	3.2E
APR 14	1 44	18.9	9-43-40.3	1.72210	0.72409	-0.885	-3.8	9.7	0.998	-0.2	23.2	339.1	155.7	3.7E
APR 16	1 53	38.4	10-39-28.7	1.72098	0.72381	-1.066	-3.8	9.7	0.997	-0.3	28.6	339.5	158.9	4.2E
APR 18	2 3	0.9	11-34-16.9	1.71964	0.72354	-1.247	-3.8	9.7	0.997	-0.3	34.1	340.0	162.1	4.7E
APR 20	2 12	26.7	12-27-58.9	1.71810	0.72327	-1.429	-3.8	9.7	0.996	-0.4	39.5	340.4	165.3	5.2E
APR 22	2 21	55.9	13-20-28.8	1.71634	0.72299	-1.611	-3.8	9.7	0.995	-0.5	44.9	340.9	168.5	5.7E
APR 24	2 31	28.9	14-11-40.8	1.71438	0.72272	-1.793	-3.8	9.7	0.994	-0.5	50.4	341.5	171.7	6.2E
APR 26	2 41	5.8	15-1-28.9	1.71220	0.72245	-1.976	-3.8	9.7	0.993	-0.6	55.8	342.1	174.9	6.7E
APR 28	2 50	46.8	15-49-47.5	1.70981	0.72218	-2.161	-3.8	9.8	0.992	-0.7	61.2	342.7	178.1	7.2E
APR 30	3 0	32.1	16-36-30.6	1.70721	0.72191	-2.349	-3.8	9.8	0.991	-0.7	66.7	343.3	181.3	7.7E
MAY 2	3 10	21.8	17-21-32.5	1.70438	0.72165	-2.540	-3.8	9.8	0.990	-0.8	72.1	344.0	184.5	8.2E
MAY 4	3 20	15.9	18-4-47.0	1.70134	0.72140	-2.734	-3.8	9.8	0.988	-0.8	77.5	344.7	187.8	8.8E
MAY 6	3 30	14.5	18-46-8.3	1.69807	0.72115	-2.932	-3.8	9.8	0.987	-0.9	83.0	345.5	191.0	9.3E
MAY 8	3 40	17.6	19-25-30.8	1.69456	0.72090	-3.131	-3.8	9.8	0.986	-0.9	88.4	346.3	194.2	9.8E
MAY 10	3 50	25.2	20-2-48.7	1.69083	0.72067	-3.332	-3.8	9.9	0.984	-1.0	93.8	347.1	197.4	10.3E
MAY 12	4 0	37.1	20-37-56.8	1.68687	0.72044	-3.533	-3.8	9.9	0.982	-1.1	99.2	347.9	200.7	10.9E
MAY 14	4 10	53.3	21-10-49.5	1.68267	0.72022	-3.734	-3.8	9.9	0.980	-1.1	104.7	348.8	203.9	11.4E
MAY 16	4 21	13.6	21-41-22.0	1.67824	0.72002	-3.934	-3.8	9.9	0.978	-1.2	110.1	349.7	207.1	11.9E
MAY 18	4 31	37.7	22-9-29.4	1.67358	0.71982	-4.133	-3.8	10.0	0.976	-1.2	115.5	350.6	210.4	12.5E
MAY 20	4 42	5.4	22-35-7.1	1.66870	0.71963	-4.330	-3.8	10.0	0.974	-1.3	120.9	351.6	213.6	13.0E
MAY 22	4 52	36.5	22-58-11.1	1.66358	0.71946	-4.526	-3.8	10.0	0.972	-1.3	126.3	352.5	216.8	13.5E
MAY 24	5 3	10.7	23-18-37.7	1.65824	0.71929	-4.720	-3.8	10.1	0.970	-1.3	131.8	353.5	220.1	14.1E
MAY 26	5 13	47.6	23-36-23.5	1.65268	0.71914	-4.914	-3.8	10.1	0.967	-1.4	137.2	354.5	223.3	14.6E
MAY 28	5 24	26.8	23-51-25.6	1.64689	0.71901	-5.108	-3.8	10.1	0.965	-1.4	142.6	355.5	226.6	15.1E
MAY 30	5 35	8.0	24-3-41.2	1.64088	0.71888	-5.303	-3.8	10.2	0.962	-1.5	148.0	356.5	229.8	15.7E
JUN 1	5 45	50.7	24-13-8.1	1.63464	0.71877	-5.499	-3.8	10.2	0.960	-1.5	153.4	357.6	233.1	16.2E
JUN 3	5 56	34.5	24-19-44.4	1.62818	0.71868	-5.697	-3.8	10.2	0.957	-1.5	158.8	358.6	236.3	16.7E
JUN 5	6 7	18.8	24-23-28.9	1.62148	0.71860	-5.895	-3.8	10.3	0.954	-1.5	164.2	359.7	239.5	17.3E
JUN 7	6 18	3.3	24-24-21.0	1.61456	0.71853	-6.094	-3.8	10.3	0.951	-1.6	1			

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h m s)	(d ' ")			(a.u.)	(a.u.)	(km/s)		(")						
JUL 1	8 24 10.3	20 57 37.7	1.51442		0.71894	-8.288	-3.8	11.0	0.908	-1.5	234.4	12.3	281.8	24.1E	
JUL 3	8 34 15.7	20 23 44.1	1.50475		0.71908	-8.458	-3.8	11.1	0.904	-1.5	239.8	13.1	285.0	24.6E	
JUL 5	8 44 16.0	19 47 36.0	1.49488		0.71922	-8.626	-3.8	11.2	0.900	-1.5	245.2	13.9	288.2	25.2E	
JUL 7	8 54 11.1	19 9 18.6	1.48482		0.71938	-8.793	-3.8	11.2	0.895	-1.4	250.6	14.7	291.5	25.7E	
JUL 9	9 4 1.0	18 28 57.4	1.47457		0.71955	-8.957	-3.8	11.3	0.891	-1.4	256.0	15.4	294.7	26.2E	
JUL 11	9 13 45.6	17 46 37.9	1.46413		0.71973	-9.119	-3.8	11.4	0.886	-1.3	261.4	16.1	298.0	26.7E	
JUL 13	9 23 24.8	17 2 25.7	1.45351		0.71992	-9.276	-3.8	11.5	0.882	-1.3	266.7	16.8	301.2	27.2E	
JUL 15	9 32 58.8	16 16 26.5	1.44270		0.72012	-9.430	-3.8	11.6	0.877	-1.2	272.1	17.4	304.4	27.7E	
JUL 17	9 42 27.6	15 28 46.1	1.43173		0.72034	-9.579	-3.8	11.7	0.872	-1.2	277.5	18.0	307.7	28.2E	
JUL 19	9 51 51.3	14 39 30.4	1.42058		0.72056	-9.722	-3.8	11.7	0.867	-1.1	282.9	18.6	310.9	28.7E	
JUL 21	10 1 10.0	13 48 45.3	1.40927		0.72079	-9.860	-3.8	11.8	0.863	-1.0	288.2	19.1	314.1	29.2E	
JUL 23	10 10 23.9	12 56 36.6	1.39780		0.72103	-9.993	-3.8	11.9	0.858	-0.9	293.6	19.6	317.3	29.7E	
JUL 25	10 19 33.2	12 3 9.8	1.38618		0.72128	-10.123	-3.8	12.0	0.853	-0.9	299.0	20.1	320.6	30.2E	
JUL 27	10 28 38.0	11 8 30.4	1.37442		0.72153	-10.250	-3.8	12.1	0.847	-0.8	304.3	20.5	323.8	30.7E	
JUL 29	10 37 38.8	10 12 43.9	1.36251		0.72179	-10.376	-3.8	12.2	0.842	-0.7	309.7	20.9	327.0	31.2E	
JUL 31	10 46 35.6	9 15 56.0	1.35045		0.72205	-10.500	-3.8	12.4	0.837	-0.6	315.1	21.2	330.2	31.7E	
AUG 2	10 55 28.8	8 18 12.2	1.33825		0.72232	-10.622	-3.8	12.5	0.832	-0.5	320.4	21.6	333.4	32.2E	
AUG 4	11 4 18.6	7 19 38.3	1.32591		0.72259	-10.743	-3.8	12.6	0.826	-0.4	325.8	21.8	336.7	32.6E	
AUG 6	11 13 5.2	6 20 19.9	1.31343		0.72286	-10.861	-3.8	12.7	0.821	-0.3	331.1	22.1	339.9	33.1E	
AUG 8	11 21 49.0	5 20 22.6	1.30082		0.72314	-10.977	-3.8	12.8	0.815	-0.2	336.5	22.3	343.1	33.6E	
AUG 10	11 30 30.2	4 19 52.0	1.28808		0.72341	-11.090	-3.8	13.0	0.810	-0.1	341.8	22.5	346.3	34.1E	
AUG 12	11 39 9.1	3 18 53.7	1.27520		0.72368	-11.199	-3.9	13.1	0.804	0.0	347.2	22.6	349.5	34.5E	
AUG 14	11 47 45.9	2 17 33.1	1.26221		0.72396	-11.304	-3.9	13.2	0.799	0.1	352.5	22.7	352.7	35.0E	
AUG 16	11 56 21.1	1 15 55.8	1.24909		0.72423	-11.404	-3.9	13.4	0.793	0.2	357.9	22.8	355.9	35.4E	
AUG 18	12 4 54.7	0 14 7.3	1.23586		0.72450	-11.499	-3.9	13.5	0.787	0.4	3 3.2	22.8	359.1	35.9E	
AUG 20	12 13 27.3	0 47 46.9	1.22253		0.72476	-11.588	-3.9	13.7	0.781	0.5	8.5	22.8	2.3	36.3E	
AUG 22	12 21 59.0	-1 49 41.8	1.20909		0.72502	-11.673	-3.9	13.8	0.775	0.6	13.9	22.8	5.5	36.8E	
AUG 24	12 30 30.2	-2 51 32.3	1.19556		0.72527	-11.755	-3.9	14.0	0.769	0.7	19.2	22.8	8.6	37.2E	
AUG 26	12 39 1.2	-3 53 13.3	1.18194		0.72552	-11.835	-3.9	14.1	0.763	0.9	24.5	22.7	11.8	37.6E	
AUG 28	12 47 32.5	-4 54 39.9	1.16822		0.72576	-11.914	-3.9	14.3	0.757	1.0	29.8	22.5	15.0	38.1E	
AUG 30	12 56 4.1	-5 55 46.6	1.15442		0.72600	-11.992	-3.9	14.5	0.751	1.1	35.1	22.4	18.2	38.5E	
SEP 1	13 4 36.6	-6 56 28.3	1.14052		0.72622	-12.068	-3.9	14.6	0.744	1.3	40.4	22.2	21.4	38.9E	
SEP 3	13 13 10.0	-7 56 39.4	1.12654		0.72644	-12.144	-3.9	14.8	0.738	1.4	45.7	22.0	24.6	39.3E	
SEP 5	13 21 44.6	-8 56 14.6	1.11247		0.72664	-12.218	-3.9	15.0	0.732	1.5	51.1	21.7	27.7	39.7E	
SEP 7	13 30 20.8	-9 55 8.4	1.09831		0.72684	-12.290	-3.9	15.2	0.725	1.6	56.3	21.4	30.9	40.1E	
SEP 9	13 38 58.7	-10 53 15.4	1.08408		0.72703	-12.360	-3.9	15.4	0.719	1.8	61.6	21.1	34.1	40.5E	
SEP 11	13 47 38.5	-11 50 30.1	1.06976		0.72720	-12.427	-3.9	15.6	0.712	1.9	66.9	20.8	37.2	40.9E	
SEP 13	13 56 20.4	-12 46 46.8	1.05537		0.72736	-12.491	-4.0	15.8	0.705	2.0	72.2	20.4	40.4	41.2E	
SEP 15	14 5 4.6	-13 42 0.1	1.04091		0.72751	-12.550	-4.0	16.0	0.699	2.2	77.5	20.0	43.6	41.6E	
SEP 17	14 13 51.2	-14 36 4.4	1.02638		0.72765	-12.604	-4.0	16.3	0.692	2.3	82.8	19.5	46.8	42.0E	
SEP 19	14 22 40.4	-15 28 54.4	1.01179		0.72777	-12.654	-4.0	16.5	0.685	2.4	88.0	19.0	49.9	42.3E	
SEP 21	14 31 32.3	-16 20 24.9	0.99715		0.72788	-12.701	-4.0	16.7	0.678	2.6	93.3	18.5	53.1	42.7E	
SEP 23	14 40 27.0	-17 10 31.0	0.98245		0.72797	-12.745	-4.0	17.0	0.671	2.7	98.5	18.0	56.2	43.0E	
SEP 25	14 49 24.6	-17 59 7.5	0.96770		0.72805	-12.788	-4.0	17.2	0.663	2.8	103.8	17.4	59.4	43.3E	
SEP 27	14 58 25.2	-18 46 9.2	0.95291		0.72812	-12.831	-4.0	17.5	0.656	2.9	109.0	16.8	62.6	43.6E	
SEP 29	15 7 28.8	-19 31 31.1	0.93806		0.72817	-12.872	-4.0	17.8	0.649	3.0	114.3	16.2	65.7	43.9E	
OCT 1	15 16 35.2	-20 15 7.9	0.92317		0.72821	-12.913	-4.1	18.1	0.641	3.2	119.5	15.5	68.9	44.2E	
OCT 3	15 25 44.5	-20 56 54.7	0.90823		0.72823	-12.953	-4.1	18.4	0.634	3.3	124.7	14.9	72.1	44.5E	
OCT 5	15 34 56.4	-21 36 46.5	0.89325		0.72823	-12.992	-4.1	18.7	0.626	3.4	129.9	14.2	75.2	44.8E	
OCT 7	15 44 10.9	-22 14 38.6	0.87822		0.72822	-13.030	-4.1	19.0	0.618	3.5	135.1	13.4	78.4	45.1E	
OCT 9	15 53 27.5	-22 50 26.3	0.86315		0.72820	-13.066	-4.1	19.3	0.610	3.6	140.3	12.7	81.5	45.3E	
OCT 11	16 2 46.1	-23 24 5.5	0.84803		0.72816	-13.098	-4.1	19.7	0.602	3.7	145.5	11.9	84.7	45.6E	
OCT 13	16 12 6.1	-23 55 31.9	0.83289		0.72811	-13.127	-4.1	20.0	0.594	3.7	150.6	11.1	87.9	45.8E	
OCT 15	16 21 27.2	-24 24 41.8	0.81771		0.72804	-13.151	-4.1	20.4	0.586	3.8	155.8	10.3	91.0	46.0E	
OCT 17	16 30 49.0	-24 51 31.9	0.80251		0.72795	-13.169	-4.2	20.8	0.577	3.9	160.9	9.5	94.2	46.2E	
OCT 19	16 40 10.9	-25 15 59.5	0.78729		0.72789	-13.183	-4.2	21.2	0.569	4.0	166.1	8.6	97.4	46.4E	
OCT 21	16 49 32.5	-25 38 2.1	0.77206		0.72774	-13.193	-4.2	21.6	0.560	4.0	171.2	7.8	100.5	46.5E	
OCT 23	16 58 53.2	-25 57 38.0	0.75681		0.72762	-13.200	-4.2	22.1	0.551	4.1	176.3	6.9	103.7	46.7E	
OCT 25	17 8 12.4	-26 14 45.5	0.74156		0.72748	-13.204	-4.2	22.5	0.542	4.1	181.3	6.0	106.9	46.8E	
OCT 27	17 17 29.4	-26 29 23.5	0.72631		0.72733	-13.206	-4.2	23.0	0.533	4.2	186.4	5.2	110.0	46.9E	
OCT 29	17 26 43.5	-26 41 31.4	0.71105		0.72716	-13.206	-4.3	23.5	0.523	4.2	191.4	4.3	113.2	47.0E	
OCT 31	17 35 54.0	-26 51 8.8	0.69580		0.72699	-13.202	-4.3	24.0	0.513	4.2	196.5	3.4	116.4	47.1E	
NOV 2	17 45 0.1	-26 58 16.2	0.68056		0.72680	-13.197	-4.3	24.5	0.503	4.2	201.5	2.5	119.5	47.1E	
NOV 4	17 54 0.8	-27 2 54.5	0.66532		0.72660	-13.188	-4.3	25.1	0.493	4.3	206.4	1.6	122.7	47.1E	
NOV 6	18 2 55.3	-27 5 5.4	0.65009		0.72639	-13.175	-4.3	25.7	0.483	4.2	211.4	0.8	125.9	47.1E	
NOV 8	18 11 42.5	-27 4 51.1	0.63488		0.72617	-13.156	-4.3	26.3	0.472	4.2	216.3	359.9	129.1	47.0E	
NOV 10	18 20 21.4	-27 2 14.3	0.61970		0.72595	-13.131	-4.4	26.9	0.461	4.2	221.2	359.1	132.2	47.0E	
NOV 12	18 28 50.9	-26 57 18.4	0.60455		0.72571	-13.096	-4.4	27.6	0.450	4.2	226.1	358.3	135.4	46.8E	
NOV 14	18 37 10.0	-26 50 7.4	0.58945		0.72547	-13.052	-4.4	28.3	0.439	4.1	230.9	357.4	138.6	46.7E	
NOV 16	18 45 17.7	-26 40 46.0	0.57440		0.72522	-12.998	-4.4	29.1	0.427	4.1	235.7	356.7	141.8	46.5E	
NOV 18	18 53 12.8	-26 29 19.4	0.55942		0.72497	-12.933	-4.4	29.8	0.415	4.0	240.4	355.9	145.0	46.3E	
NOV 20	19 0 54.4	-26 15 53.2	0.54453		0.72471	-12.858	-4.4	30.6	0.402	3.9	245.1	355.2	148.2	46.0E	
NOV 22	19 8 21.1	-26 0 33.6	0.52972		0.72444	-12.772	-4.5	31.5	0.389	3.8	249.8	354.5	151.4	45.7E	
NOV 24	19 15 32.0	-25 43 26.9	0.51503		0.72417	-12.676	-4.5	32.4	0.376	3.7	254.4	353.8	154.6	45.3E	
NOV 26	19 22 25.7	-25 24 40.0	0.50045		0.72390	-12.567	-4.5	33.3	0.362	3.5	258.9	353.1	157.8	44.8E	
NOV 28	19 29 1.1	-25 4 20.3	0.48600		0.72363	-12.446	-4.5	34.3	0.348	3.4	263.4	352.5	161.0	44.3E	
NOV 30	19 35 16.7	-24 42 35.3	0.47170		0.72335	-12.310	-4.5	35.4	0.334	3.2	267.9	352.0	164.2	43.8E	
DEC 2	19 41 11.1	-24 19 33.5	0.45757		0.72308	-1									

Date (0 DT)	RA (h m s)	(Mean) (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 1	20 7 47.9	-17-49-16.1	0.28793	0.71952	-5.801	-4.3	58.0	0.058	-2.3	323.9	349.1	215.7	20.0E	
JAN 3	20 4 28.2	-17-27-35.4	0.28170	0.71935	-4.974	-4.3	59.2	0.043	-2.8	326.1	349.3	219.0	17.3E	
JAN 5	20 0 33.4	-17 -7-17.3	0.27646	0.71920	-4.090	-4.2	60.4	0.031	-3.3	328.2	349.7	222.2	14.6E	
JAN 7	19 56 8.0	-16-48-29.2	0.27227	0.71906	-3.154	-4.1	61.3	0.020	-3.8	330.2	350.1	225.4	11.9E	
JAN 9	19 51 17.8	-16-31-17.9	0.26918	0.71893	-2.175	-4.1	62.0	0.012	-4.3	332.1	350.5	228.7	9.2E	
JAN 11	19 46 10.0	-16-15-49.6	0.26725	0.71882	-1.163	-4.0	62.4	0.007	-4.8	333.8	350.9	231.9	6.9E	
JAN 13	19 40 52.6	-16 -2 -9.7	0.26650	0.71872	-0.132	-4.0	62.6	0.004	-5.2	335.6	351.4	235.2	5.5E	
JAN 15	19 35 34.2	-15-50-22.2	0.26694	0.71864	0.902	-4.0	62.5	0.005	-5.6	337.3	351.9	238.4	5.9W	
JAN 17	19 30 23.3	-15-40-30.1	0.26858	0.71857	1.925	-4.0	62.1	0.009	-5.9	339.1	352.4	241.7	7.8W	
JAN 19	19 25 28.3	-15-32 34.6	0.27138	0.71851	2.922	-4.1	61.5	0.015	-6.2	340.9	352.8	244.9	10.3W	
JAN 21	19 20 56.4	-15-26-34.8	0.27531	0.71847	3.881	-4.2	60.6	0.024	-6.4	342.7	353.2	248.2	13.0W	
JAN 23	19 16 54.0	-15-22-28.0	0.28032	0.71845	4.793	-4.2	59.5	0.036	-6.6	344.7	353.6	251.4	15.7W	
JAN 25	19 13 36.1	-15-20 -9.1	0.28636	0.71844	5.648	-4.3	58.3	0.049	-6.7	346.9	353.9	254.7	18.4W	
JAN 27	19 10 36.2	-15-19-31.1	0.29335	0.71845	6.445	-4.3	56.9	0.064	-6.8	349.1	354.2	257.9	20.9W	
JAN 29	19 8 26.5	-15-20-25.0	0.30122	0.71848	7.180	-4.4	55.4	0.080	-6.8	351.6	354.4	261.2	23.4W	
JAN 31	19 6 58.3	-15-22-40.3	0.30991	0.71851	7.856	-4.4	53.9	0.098	-6.8	354.2	354.6	264.4	25.7W	
FEB 2	19 6 11.5	-15-26 -5.4	0.31935	0.71857	8.475	-4.5	52.3	0.116	-6.8	357.0	354.6	267.7	27.8W	
FEB 4	19 6 5.7	-15-30-27.5	0.32947	0.71864	9.041	-4.5	50.7	0.134	-6.7	359.9	354.6	270.9	29.8W	
FEB 6	19 6 40.0	-15-35-33.5	0.34021	0.71872	9.556	-4.5	49.1	0.152	-6.6	3.0	354.6	274.1	31.6W	
FEB 8	19 7 52.7	-15-41 -9.7	0.35152	0.71882	10.022	-4.5	47.5	0.171	-6.5	6.2	354.5	277.4	33.3W	
FEB 10	19 9 42.3	-15-47 -2.1	0.36334	0.71894	10.443	-4.5	45.9	0.189	-6.4	9.6	354.3	280.6	34.8W	
FEB 12	19 12 6.7	-15-52-57.1	0.37563	0.71906	10.821	-4.5	44.4	0.207	-6.2	13.2	354.1	283.9	36.2W	
FEB 14	19 15 4.0	-15-58-41.4	0.38833	0.71920	11.160	-4.5	43.0	0.225	-6.0	16.8	353.8	287.1	37.5W	
FEB 16	19 18 31.9	-16 -4 -2.3	0.40140	0.71936	11.463	-4.5	41.6	0.243	-5.9	20.6	353.5	290.4	38.6W	
FEB 18	19 22 28.5	-16 -8-47.9	0.41480	0.71952	11.733	-4.5	40.2	0.260	-5.7	24.5	353.1	293.6	39.7W	
FEB 20	19 26 51.6	-16-12-47.3	0.42849	0.71970	11.972	-4.5	38.9	0.276	-5.5	28.5	352.7	296.8	40.6W	
FEB 22	19 31 39.2	-16-15-50.4	0.44244	0.71989	12.184	-4.5	37.7	0.292	-5.3	32.6	352.3	300.1	41.5W	
FEB 24	19 36 49.4	-16-17-48.2	0.45663	0.72009	12.371	-4.5	36.5	0.308	-5.1	36.8	351.8	303.3	42.2W	
FEB 26	19 42 20.2	-16-18-32.7	0.47101	0.72030	12.536	-4.5	35.4	0.323	-4.9	41.1	351.3	306.5	42.9W	
FEB 28	19 48 9.7	-16-17-57.0	0.48558	0.72052	12.683	-4.5	34.4	0.338	-4.6	45.4	350.8	309.8	43.5W	
MAR 2	19 54 16.4	-16-15-54.8	0.50031	0.72075	12.815	-4.5	33.4	0.353	-4.4	49.8	350.2	313.0	44.0W	
MAR 4	20 0 38.7	-16-12-20.9	0.51518	0.72099	12.935	-4.5	32.4	0.367	-4.2	54.3	349.7	316.2	44.5W	
MAR 6	20 7 15.2	-16 -7 10.5	0.53019	0.72123	13.042	-4.4	31.5	0.380	-4.0	58.9	349.1	319.4	44.9W	
MAR 8	20 14 4.6	-16 -0-19.5	0.54531	0.72149	13.139	-4.4	30.6	0.394	-3.8	63.5	348.5	322.7	45.3W	
MAR 10	20 21 5.8	-15-51-44.4	0.56053	0.72174	13.225	-4.4	29.8	0.407	-3.6	68.1	347.9	325.9	45.6W	
MAR 12	20 28 17.5	-15-41-22.2	0.57585	0.72200	13.300	-4.4	29.0	0.419	-3.4	72.8	347.3	329.1	45.8W	
MAR 14	20 35 38.9	-15-29-10.3	0.59126	0.72227	13.365	-4.4	28.2	0.432	-3.2	77.5	346.7	332.3	46.0W	
MAR 16	20 43 8.8	-15-15 -7.0	0.60673	0.72254	13.421	-4.4	27.5	0.443	-3.0	82.3	346.1	335.5	46.2W	
MAR 18	20 50 46.5	-14-59-11.0	0.62226	0.72281	13.467	-4.3	26.8	0.455	-2.8	87.1	345.5	338.7	46.3W	
MAR 20	20 58 31.0	-14-41-21.8	0.63783	0.72308	13.503	-4.3	26.2	0.466	-2.6	92.0	345.0	341.9	46.4W	
MAR 22	21 6 21.6	-14-21-39.4	0.65345	0.72336	13.531	-4.3	25.5	0.478	-2.4	96.9	344.4	345.2	46.5W	
MAR 24	21 14 17.6	-14 -0 -4.5	0.66909	0.72363	13.550	-4.3	24.9	0.488	-2.3	101.8	343.8	348.4	46.5W	
MAR 26	21 22 18.1	-13-36-38.5	0.68475	0.72390	13.562	-4.3	24.4	0.499	-2.1	106.7	343.3	351.6	46.5W	
MAR 28	21 30 22.5	-13-11-23.2	0.70042	0.72417	13.568	-4.3	23.8	0.509	-1.9	111.7	342.7	354.8	46.5W	
MAR 30	21 38 30.3	-12-44-20.9	0.71609	0.72444	13.569	-4.2	23.3	0.519	-1.7	116.7	342.2	358.0	46.5W	
APR 1	21 46 40.9	-12-15-34.1	0.73177	0.72470	13.568	-4.2	22.8	0.529	-1.6	121.7	341.7	1.1	46.4W	
APR 3	21 54 53.9	-11-45 -5.7	0.74744	0.72496	13.565	-4.2	22.3	0.539	-1.4	126.7	341.2	4.3	46.3W	
APR 5	22 3 8.8	-11-12-58.7	0.76310	0.72522	13.558	-4.2	21.9	0.549	-1.3	131.8	340.8	7.5	46.2W	
APR 7	22 11 25.5	-10-39 16.2	0.77876	0.72547	13.549	-4.2	21.4	0.558	-1.1	136.8	340.3	10.7	46.0W	
APR 9	22 19 43.5	-10 -4 -1.5	0.79440	0.72571	13.535	-4.2	21.0	0.567	-1.0	141.9	339.9	13.9	45.9W	
APR 11	22 28 2.7	-9-27-18.1	0.81003	0.72594	13.518	-4.1	20.6	0.576	-0.8	147.0	339.5	17.1	45.7W	
APR 13	22 36 22.9	-8-49 -9.5	0.82563	0.72617	13.497	-4.1	20.2	0.585	-0.7	152.1	339.2	20.3	45.5W	
APR 15	22 44 44.0	-8 -9-39.7	0.84120	0.72639	13.471	-4.1	19.8	0.594	-0.6	157.2	338.8	23.4	45.3W	
APR 17	22 53 5.8	-7-28-52.6	0.85675	0.72660	13.439	-4.1	19.5	0.602	-0.5	162.4	338.5	26.6	45.1W	
APR 19	23 1 28.2	-6-46-52.6	0.87225	0.72679	13.402	-4.1	19.1	0.611	-0.4	167.5	338.2	29.8	44.9W	
APR 21	23 9 51.3	-6 -3-44.2	0.88771	0.72698	13.360	-4.1	18.8	0.619	-0.2	172.7	338.0	33.0	44.6W	
APR 23	23 18 14.8	-5 19 32.3	0.90311	0.72716	13.313	-4.1	18.5	0.627	-0.1	177.9	337.8	36.1	44.4W	
APR 25	23 26 38.9	-4-34-21.8	0.91846	0.72732	13.261	-4.0	18.2	0.635	0.0	183.1	337.6	39.3	44.1W	
APR 27	23 35 3.4	-3 48 17.7	0.93375	0.72747	13.206	-4.0	17.9	0.643	0.0	188.2	337.4	42.5	43.8W	
APR 29	23 43 28.4	-3 1 25.2	0.94897	0.72761	13.149	-4.0	17.6	0.651	0.1	193.4	337.3	45.6	43.6W	
MAY 1	23 51 53.9	-2-13-49.3	0.96412	0.72773	13.092	-4.0	17.3	0.658	0.2	198.7	337.2	48.8	43.3W	
MAY 3	0 0 20.1	-1-25 35.0	0.97921	0.72785	13.033	-4.0	17.0	0.666	0.3	203.9	337.2	52.0	42.9W	
MAY 5	0 8 47.0	-0 36 47.5	0.99423	0.72794	12.973	-4.0	16.8	0.673	0.4	209.1	337.2	55.1	42.6W	
MAY 7	0 17 14.8	0 13 28.4	1.00918	0.72803	12.910	-4.0	16.5	0.681	0.4	214.3	337.2	58.3	42.3W	
MAY 9	0 25 43.6	1 2 7.8	1.02406	0.72810	12.846	-4.0	16.3	0.688	0.5	219.6	337.2	61.5	42.0W	
MAY 11	0 34 13.7	1 52 5.8	1.03886	0.72815	12.778	-4.0	16.1	0.695	0.5	224.9	337.3	64.6	41.6W	
MAY 13	0 42 45.2	2 42 17.4	1.05358	0.72819	12.708	-3.9	15.8	0.702	0.6	230.1	337.4	67.8	41.3W	
MAY 15	0 51 18.3	3 32 37.7	1.06821	0.72821	12.633	-3.9	15.6	0.709	0.6	235.3	337.5	70.9	40.9W	
MAY 17	0 59 53.2	4 23 1.5	1.08276	0.72822	12.554	-3.9	15.4	0.716	0.7	240.6	337.7	74.1	40.5W	
MAY 19	1 8 30.1	5 13 23.5	1.09721	0.72822	12.469	-3.9	15.2	0.722	0.7	245.8	337.9	77.3	40.1W	
MAY 21	1 17 9.2	6 3 38.2	1.11156	0.72819	12.380	-3.9	15.0	0.729	0.7	251.1	338.1	80.4	39.8W	
MAY 23	1 25 50.7	6 53 40.3	1.12581	0.72816	12.285	-3.9	14.8	0.736	0.8	256.4	338.4	83.6	39.4W	
MAY 25	1 34 34.7	7 43 24.0	1.13994	0.72811	12.188	-3.9	14.6	0.742	0.8	261.7	338.7	86.7	39.0W	
MAY 27	1 43 21.5	8 32 44.0	1.15396	0.72804	12.088	-3.9	14.5	0.749	0.8	267.0	339.1	89.9	38.6W	
MAY 29	1 52 11.2	9 21 34.5	1.16787	0.72796	11.987	-3.9	14.3	0.755	0.8	272.3	339.4	93.1	38.2W	
MAY 31	2 1 4.0	10 9 50.2	1.18166	0.72787	11.884	-3.9	14.1	0.761	0.8	277.5	339.9	96.2	37.8W	
JUN 2	2 10 0.1	10 57 25.3	1.19532	0.72776	11.781	-3.9	14.0	0.767	0.8	282.8	340.3	99.4	37.3W	
JUN 4	2 18 59.6	11 44 14.6	1.20887	0.72763	11.676	-3.9	13.8	0.773	0.8	288.1	340.8	102.6	36.9W	
JUN 6	2 28 2.8	12 30 12.6	1.22230	0.72750	11.569	-3.9	13.7	0.779	0.8	293.4	341.3	105.7	36.5W	
JUN 8	2 37 9.8	13 15 13.8	1.23560	0.72735	11.461	-3.9	13.5	0.785	0.8	298.8	341.8			

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	4 32	11.3	20 28 36.8	1.38412	0.72475	9.891	-3.8	12.1	0.851	0.5	2.7	350.7	147.0	30.5W
JUL 4	4 42	14.6	20 53 6.5	1.39546	0.72449	9.747	-3.8	12.0	0.856	0.4	8.1	351.6	150.2	30.1W
JUL 6	4 52	21.7	21 15 26.2	1.40664	0.72422	9.601	-3.8	11.9	0.861	0.4	13.4	352.5	153.4	29.6W
JUL 8	5 2	32.4	21 35 31.7	1.41764	0.72395	9.454	-3.8	11.8	0.865	0.3	18.8	353.4	156.6	29.1W
JUL 10	5 12	46.5	21 53 19.3	1.42848	0.72368	9.306	-3.8	11.7	0.870	0.3	24.1	354.4	159.8	28.6W
JUL 12	5 23	3.8	22 8 45.5	1.43914	0.72341	9.155	-3.8	11.6	0.875	0.3	29.5	355.4	163.0	28.1W
JUL 14	5 33	24.0	22 21 46.7	1.44963	0.72314	9.000	-3.8	11.5	0.879	0.2	34.9	356.4	166.2	27.6W
JUL 16	5 43	46.6	22 32 20.0	1.45993	0.72286	8.842	-3.8	11.4	0.884	0.2	40.2	357.4	169.4	27.1W
JUL 18	5 54	11.5	22 40 22.7	1.47005	0.72259	8.679	-3.8	11.4	0.888	0.1	45.6	358.4	172.7	26.6W
JUL 20	6 4	38.2	22 45 52.4	1.47998	0.72232	8.512	-3.8	11.3	0.893	0.1	51.0	359.4	175.9	26.1W
JUL 22	6 15	6.4	22 48 47.6	1.48972	0.72205	8.343	-3.8	11.2	0.897	0.0	56.3	0.4	179.1	25.6W
JUL 24	6 25	35.5	22 49 6.8	1.49925	0.72179	8.171	-3.8	11.1	0.901	0.0	61.7	1.4	182.3	25.1W
JUL 26	6 36	5.2	22 46 49.1	1.50859	0.72153	7.999	-3.8	11.1	0.905	-0.1	67.1	2.4	185.5	24.6W
JUL 28	6 46	35.0	22 41 54.2	1.51773	0.72128	7.826	-3.8	11.0	0.909	-0.1	72.5	3.5	188.7	24.1W
JUL 30	6 57	4.5	22 34 21.9	1.52667	0.72104	7.653	-3.8	10.9	0.913	-0.1	77.9	4.5	192.0	23.6W
AUG 1	7 7	33.3	22 24 12.9	1.53541	0.72080	7.479	-3.8	10.9	0.917	-0.2	83.3	5.5	195.2	23.1W
AUG 3	7 18	1.0	22 11 28.0	1.54395	0.72057	7.306	-3.8	10.8	0.921	-0.2	88.6	6.4	198.4	22.5W
AUG 5	7 28	27.3	21 56 8.6	1.55229	0.72035	7.134	-3.8	10.8	0.925	-0.3	94.0	7.4	201.6	22.0W
AUG 7	7 38	51.8	21 38 16.6	1.56043	0.72013	6.961	-3.8	10.7	0.928	-0.3	99.4	8.4	204.9	21.5W
AUG 9	7 49	14.1	21 17 54.1	1.56838	0.71993	6.789	-3.8	10.6	0.932	-0.3	104.8	9.3	208.1	21.0W
AUG 11	7 59	34.0	20 55 3.5	1.57612	0.71974	6.615	-3.8	10.6	0.935	-0.4	110.2	10.2	211.3	20.5W
AUG 13	8 9	51.2	20 29 47.5	1.58366	0.71956	6.438	-3.8	10.5	0.939	-0.4	115.6	11.1	214.6	19.9W
AUG 15	8 20	5.6	20 2 9.1	1.59099	0.71939	6.258	-3.8	10.5	0.942	-0.4	121.1	12.0	217.8	19.4W
AUG 17	8 30	16.8	19 32 11.9	1.59811	0.71923	6.075	-3.8	10.4	0.945	-0.4	126.5	12.8	221.1	18.9W
AUG 19	8 40	24.7	18 59 59.9	1.60502	0.71909	5.890	-3.8	10.4	0.948	-0.5	131.9	13.6	224.3	18.4W
AUG 21	8 50	29.1	18 25 37.2	1.61172	0.71896	5.704	-3.8	10.4	0.951	-0.5	137.3	14.4	227.5	17.9W
AUG 23	9 0	29.8	17 49 8.3	1.61820	0.71884	5.517	-3.8	10.3	0.954	-0.5	142.7	15.2	230.8	17.3W
AUG 25	9 10	26.8	17 10 37.9	1.62447	0.71874	5.330	-3.8	10.3	0.957	-0.5	148.1	15.9	234.0	16.8W
AUG 27	9 20	20.0	16 30 10.7	1.63052	0.71865	5.144	-3.8	10.2	0.960	-0.5	153.6	16.6	237.3	16.3W
AUG 29	9 30	9.4	15 47 51.8	1.63635	0.71858	4.959	-3.8	10.2	0.962	-0.6	159.0	17.3	240.5	15.8W
AUG 31	9 39	55.0	15 3 46.5	1.64197	0.71852	4.775	-3.8	10.2	0.965	-0.6	164.4	17.9	243.8	15.2W
SEP 2	9 49	36.9	14 17 59.8	1.64738	0.71848	4.592	-3.8	10.1	0.967	-0.6	169.8	18.5	247.0	14.7W
SEP 4	9 59	15.1	13 30 37.4	1.65258	0.71845	4.412	-3.8	10.1	0.970	-0.6	175.3	19.0	250.3	14.2W
SEP 6	10 8	49.8	12 41 44.6	1.65758	0.71844	4.234	-3.8	10.1	0.972	-0.6	180.7	19.5	253.5	13.6W
SEP 8	10 18	21.0	11 51 26.9	1.66236	0.71844	4.057	-3.8	10.0	0.974	-0.6	186.1	20.0	256.8	13.1W
SEP 10	10 27	49.0	10 59 49.5	1.66695	0.71846	3.879	-3.8	10.0	0.976	-0.6	191.6	20.5	260.0	12.6W
SEP 12	10 37	14.0	10 6 57.8	1.67133	0.71850	3.700	-3.8	10.0	0.978	-0.6	197.0	20.9	263.3	12.1W
SEP 14	10 46	36.2	9 12 57.5	1.67550	0.71855	3.519	-3.8	10.0	0.980	-0.6	202.4	21.2	266.5	11.5W
SEP 16	10 55	55.9	8 17 54.2	1.67946	0.71861	3.337	-3.8	9.9	0.982	-0.5	207.9	21.6	269.8	11.0W
SEP 18	11 5	13.2	7 21 53.9	1.68321	0.71869	3.154	-3.8	9.9	0.984	-0.5	213.3	21.9	273.0	10.5W
SEP 20	11 14	28.3	6 25 2.4	1.68674	0.71879	2.972	-3.8	9.9	0.985	-0.5	218.8	22.1	276.2	10.0W
SEP 22	11 23	41.6	5 27 25.5	1.69007	0.71890	2.789	-3.8	9.9	0.987	-0.5	224.2	22.3	279.5	9.4W
SEP 24	11 32	53.3	4 29 9.0	1.69319	0.71902	2.608	-3.8	9.9	0.988	-0.5	229.7	22.5	282.7	8.9W
SEP 26	11 42	3.8	3 30 18.9	1.69610	0.71916	2.428	-3.8	9.8	0.990	-0.4	235.1	22.7	286.0	8.4W
SEP 28	11 51	13.2	2 31 1.1	1.69880	0.71931	2.251	-3.8	9.8	0.991	-0.4	240.6	22.8	289.2	7.9W
SEP 30	12 0	21.9	1 31 21.4	1.70130	0.71947	2.076	-3.8	9.8	0.992	-0.4	246.0	22.8	292.5	7.4W
OCT 2	12 9	30.3	0 31 25.8	1.70360	0.71964	1.904	-3.8	9.8	0.993	-0.3	251.5	22.9	295.7	6.8W
OCT 4	12 18	38.6	0 28 39.7	1.70570	0.71983	1.735	-3.8	9.8	0.994	-0.3	257.0	22.8	298.9	6.3W
OCT 6	12 27	47.1	-1 28 49.4	1.70761	0.72003	1.569	-3.8	9.8	0.995	-0.3	262.4	22.8	302.2	5.8W
OCT 8	12 36	56.2	-2 28 57.5	1.70932	0.72024	1.405	-3.8	9.8	0.996	-0.2	267.9	22.7	305.4	5.3W
OCT 10	12 46	6.3	-3 28 58.4	1.71085	0.72045	1.241	-3.8	9.8	0.997	-0.2	273.3	22.6	308.6	4.8W
OCT 12	12 55	17.7	-4 28 46.1	1.71219	0.72068	1.077	-3.8	9.7	0.997	-0.1	278.8	22.4	311.9	4.3W
OCT 14	13 4	30.8	-5 28 14.7	1.71334	0.72091	0.912	-3.8	9.7	0.998	-0.1	284.3	22.2	315.1	3.8W
OCT 16	13 13	45.8	-6 27 17.8	1.71430	0.72116	0.747	-3.8	9.7	0.998	-0.1	289.7	21.9	318.3	3.3W
OCT 18	13 23	3.0	-7 25 49.4	1.71507	0.72141	0.582	-3.8	9.7	0.999	0.0	295.2	21.7	321.5	2.8W
OCT 20	13 32	22.9	-8 23 43.2	1.71565	0.72166	0.418	-3.8	9.7	0.999	0.0	300.7	21.3	324.8	2.3W
OCT 22	13 41	45.6	-9 20 52.8	1.71603	0.72192	0.254	-3.8	9.7	1.000	0.1	306.1	21.0	328.0	1.9W
OCT 24	13 51	11.4	-10 17 12.0	1.71623	0.72219	0.092	-3.8	9.7	1.000	0.2	311.6	20.6	331.2	1.4W
OCT 26	14 0	40.7	-11 12 34.4	1.71625	0.72245	-0.069	-3.8	9.7	1.000	0.2	317.1	20.2	334.4	1.1W
OCT 28	14 10	13.6	-12 6 53.6	1.71608	0.72272	-0.227	-3.8	9.7	1.000	0.3	322.5	19.7	337.6	1.0E
OCT 30	14 19	50.4	-13 0 3.0	1.71572	0.72300	-0.382	-3.8	9.7	1.000	0.3	328.0	19.2	340.8	1.1E
NOV 1	14 29	31.2	-13 51 56.2	1.71520	0.72327	-0.533	-3.8	9.7	1.000	0.4	333.5	18.6	344.0	1.4E
NOV 3	14 39	16.4	-14 42 26.8	1.71449	0.72354	-0.681	-3.8	9.7	1.000	0.4	338.9	18.0	347.2	1.8E
NOV 5	14 49	6.1	-15 31 28.5	1.71362	0.72382	-0.826	-3.8	9.7	0.999	0.5	344.4	17.4	350.4	2.2E
NOV 7	14 59	0.4	-16 18 55.1	1.71259	0.72409	-0.969	-3.8	9.7	0.999	0.5	349.9	16.8	353.6	2.7E
NOV 9	15 8	59.5	-17 4 40.4	1.71139	0.72436	-1.112	-3.8	9.8	0.999	0.6	355.3	16.1	356.8	3.2E
NOV 11	15 19	3.5	-17 48 38.1	1.71002	0.72462	-1.255	-3.8	9.8	0.998	0.6	0.8	15.3	0.0	3.6E
NOV 13	15 29	12.5	-18 30 41.6	1.70849	0.72488	-1.398	-3.8	9.8	0.998	0.7	6.3	14.6	3.2	4.1E
NOV 15	15 39	26.4	-19 10 44.9	1.70679	0.72514	-1.542	-3.8	9.8	0.997	0.8	11.8	13.8	6.4	4.6E
NOV 17	15 49	45.3	-19 48 41.7	1.70493	0.72539	-1.685	-3.8	9.8	0.996	0.8	17.2	13.0	9.6	5.1E
NOV 19	16 0	9.0	-20 24 26.0	1.70290	0.72563	-1.829	-3.8	9.8	0.996	0.9	22.7	12.1	12.8	5.6E
NOV 21	16 10	37.4	-20 57 52.2	1.70070	0.72587	-1.972	-3.8	9.8	0.995	0.9	28.2	11.2	16.0	6.1E
NOV 23	16 21	10.4	-21 28 54.6	1.69834	0.72610	-2.115	-3.8	9.8	0.994	1.0	33.7	10.3	19.1	6.6E
NOV 25	16 31	47.8	-21 57 28.0	1.69582	0.72632	-2.256	-3.8	9.8	0.993	1.0	39.1	9.4	22.3	7.1E
NOV 27	16 42	29.2	-22 23 27.3	1.69313	0.72653	-2.395	-3.8	9.9	0.992	1.1	44.6	8.4	25.5	7.5E
NOV 29	16 53	14.4	-22 46 47.9	1.69029	0.72673	-2.531	-3.8	9.9	0.991	1.1	50.1	7.4	28.7	8.0E
DEC 1	17 4	3.0	-23 7 35.5	1.68729	0.72692	-2.664	-3.8	9.9	0.990	1.1	55.6	6.4	31.8	8.5E
DEC 3	17 14	54.6	-23 25 16.3	1.68413	0.72710	-2.794	-3.8	9.9	0.989	1.2	61.0	5.4	35.0	9.0E
DEC 5	17 25	48.9	-23 40 17.1	1.68083	0.72727	-2.921	-3.8	9.9	0.987	1.2	66.5	4.4	38.2	9.5E
DEC 7														

Date (0 DT)	RA [Mean] (h m s)			Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong		
JAN 1	10	23	33.4	13	45	34.3	0.84572	1.64063	-12.340	-0.4	11.1	0.940	21.5	141.9	11.7	39.2	127.4W
JAN 3	10	23	45.5	13	49	20.4	0.83165	1.64199	-12.012	-0.4	11.3	0.943	21.5	123.7	11.7	40.1	129.4W
JAN 5	10	23	45.8	13	54	13.5	0.81798	1.64331	-11.656	-0.5	11.5	0.947	21.4	105.5	11.7	40.9	131.4W
JAN 7	10	23	34.0	14	0	13.7	0.80473	1.64460	-11.272	-0.5	11.6	0.951	21.3	87.4	11.7	41.8	133.5W
JAN 9	10	23	9.9	14	7	20.9	0.79195	1.64586	-10.861	-0.5	11.8	0.954	21.2	69.3	11.6	42.7	135.7W
JAN 11	10	22	33.4	14	15	34.3	0.77965	1.64708	-10.423	-0.6	12.0	0.958	21.1	51.3	11.5	43.6	137.9W
JAN 13	10	21	44.5	14	24	53.0	0.76788	1.64826	-9.957	-0.6	12.2	0.962	21.0	33.4	11.4	44.5	140.2W
JAN 15	10	20	42.9	14	35	15.2	0.75666	1.64940	-9.463	-0.7	12.4	0.966	20.9	15.5	11.2	45.4	142.5W
JAN 17	10	19	28.8	14	46	38.9	0.74603	1.65051	-8.941	-0.7	12.6	0.970	20.7	357.6	11.0	46.3	144.8W
JAN 19	10	18	2.2	14	59	1.2	0.73601	1.65158	-8.390	0.8	12.7	0.973	20.6	339.8	10.8	47.2	147.2W
JAN 21	10	16	23.2	15	12	18.7	0.72665	1.65262	-7.810	-0.8	12.9	0.977	20.4	322.1	10.5	48.1	149.7W
JAN 23	10	14	32.1	15	26	26.9	0.71798	1.65362	-7.200	-0.9	13.0	0.980	20.3	304.4	10.2	49.0	152.2W
JAN 25	10	12	29.2	15	41	20.8	0.71003	1.65458	-6.561	-0.9	13.2	0.984	20.1	286.8	9.8	49.9	154.7W
JAN 27	10	10	15.0	15	56	54.3	0.70283	1.65550	-5.891	-1.0	13.3	0.987	20.0	269.2	9.5	50.7	157.3W
JAN 29	10	7	50.2	16	13	0.6	0.69643	1.65638	-5.194	-1.0	13.5	0.989	19.8	251.7	9.1	51.6	159.9W
JAN 31	10	5	15.6	16	29	31.9	0.69084	1.65723	-4.471	-1.1	13.6	0.992	19.6	234.1	8.7	52.5	162.5W
FEB 2	10	2	32.1	16	46	19.8	0.68610	1.65804	-3.728	-1.1	13.7	0.994	19.4	216.7	8.2	53.4	165.2W
FEB 4	9	59	40.8	17	3	15.7	0.68223	1.65881	-2.968	-1.1	13.7	0.996	19.3	199.2	7.8	54.3	167.8W
FEB 6	9	56	43.1	17	20	10.7	0.67925	1.65954	-2.195	-1.2	13.8	0.997	19.1	181.8	7.3	55.2	170.3W
FEB 8	9	53	40.2	17	36	56.0	0.67717	1.66023	-1.414	-1.2	13.8	0.999	18.9	164.4	6.8	56.0	172.6W
FEB 10	9	50	33.5	17	53	23.1	0.67598	1.66088	-0.628	-1.2	13.9	0.999	18.7	147.0	6.3	56.9	174.6W
FEB 12	9	47	24.4	18	9	23.9	0.67571	1.66150	0.159	-1.2	13.9	0.999	18.5	129.6	5.8	57.8	175.5W
FEB 14	9	44	14.2	18	24	50.8	0.67635	1.66207	0.944	-1.2	13.9	0.999	18.3	112.2	5.3	58.7	174.7E
FEB 16	9	41	4.6	18	39	36.9	0.67789	1.66261	1.724	-1.2	13.8	0.999	18.1	94.8	4.8	59.5	172.9E
FEB 18	9	37	56.8	18	53	35.9	0.68033	1.66311	2.497	-1.2	13.8	0.998	18.0	77.3	4.3	60.4	170.6E
FEB 20	9	34	52.2	19	6	42.2	0.68365	1.66356	3.259	-1.1	13.7	0.996	17.8	59.9	3.8	61.3	168.1E
FEB 22	9	31	52.3	19	18	50.8	0.68785	1.66398	4.010	-1.1	13.6	0.994	17.7	42.4	3.3	62.2	165.5E
FEB 24	9	28	58.3	19	29	57.8	0.69291	1.66436	4.746	-1.0	13.5	0.992	17.5	24.9	2.9	63.0	162.9E
FEB 26	9	26	11.5	19	39	59.8	0.69881	1.66470	5.463	-1.0	13.4	0.990	17.4	7.4	2.4	63.9	160.3E
FEB 28	9	23	33.0	19	48	54.5	0.70552	1.66500	6.159	-1.0	13.3	0.987	17.2	349.8	2.0	64.8	157.7E
MAR 2	9	21	3.9	19	56	40.0	0.71302	1.66526	6.829	-0.9	13.1	0.984	17.1	332.2	1.6	65.7	155.2E
MAR 4	9	18	45.0	20	3	15.7	0.72128	1.66548	7.472	-0.9	13.0	0.981	17.0	314.5	1.3	66.5	152.7E
MAR 6	9	16	37.3	20	8	41.5	0.73027	1.66566	8.084	-0.8	12.8	0.978	17.0	296.8	0.9	67.4	150.2E
MAR 8	9	14	41.2	20	12	58.4	0.73994	1.66580	8.664	-0.8	12.7	0.974	16.9	279.1	0.6	68.3	147.8E
MAR 10	9	12	57.3	20	16	7.5	0.75027	1.66590	9.214	-0.7	12.5	0.970	16.8	261.3	0.3	69.2	145.4E
MAR 12	9	11	25.9	20	18	10.8	0.76122	1.66596	9.732	-0.7	12.3	0.967	16.8	243.4	0.1	70.0	143.1E
MAR 14	9	10	7.0	20	19	10.3	0.77274	1.66599	10.219	-0.6	12.1	0.963	16.8	225.5	359.9	70.9	140.8E
MAR 16	9	9	0.9	20	19	8.2	0.78481	1.66597	10.677	-0.6	11.9	0.959	16.8	207.5	359.7	71.8	138.6E
MAR 18	9	8	7.5	20	18	6.9	0.79740	1.66591	11.107	-0.5	11.7	0.956	16.8	189.5	359.6	72.6	136.4E
MAR 20	9	7	26.6	20	16	8.5	0.81046	1.66581	11.511	-0.5	11.6	0.952	16.8	171.4	359.5	73.5	134.3E
MAR 22	9	6	58.2	20	13	15.3	0.82398	1.66567	11.890	-0.4	11.4	0.948	16.9	153.3	359.4	74.4	132.2E
MAR 24	9	6	42.0	20	9	29.2	0.83792	1.66549	12.245	-0.4	11.2	0.945	16.9	135.1	359.4	75.3	130.2E
MAR 26	9	6	37.9	20	4	52.4	0.85226	1.66528	12.576	-0.3	11.0	0.941	17.0	116.9	359.4	76.1	128.2E
MAR 28	9	6	45.5	19	59	26.4	0.86696	1.66502	12.882	-0.3	10.8	0.938	17.1	98.6	359.4	77.0	126.3E
MAR 30	9	7	4.6	19	53	13.1	0.88201	1.66472	13.164	-0.2	10.6	0.935	17.2	80.3	359.4	77.9	124.4E
APR 1	9	7	34.9	19	46	14.0	0.89736	1.66439	13.420	-0.2	10.4	0.931	17.3	61.9	359.5	78.8	122.6E
APR 3	9	8	16.1	19	38	31.0	0.91300	1.66401	13.653	-0.1	10.3	0.928	17.5	43.5	359.6	79.6	120.8E
APR 5	9	9	7.8	19	30	5.6	0.92889	1.66359	13.862	-0.1	10.1	0.925	17.6	25.0	359.7	80.5	119.1E
APR 7	9	10	9.5	19	20	59.5	0.94501	1.66314	14.050	0.0	9.9	0.923	17.8	6.5	359.9	81.4	117.4E
APR 9	9	11	20.8	19	11	14.2	0.96134	1.66264	14.217	0.0	9.7	0.920	17.9	348.0	0.1	82.3	115.8E
APR 11	9	12	41.4	19	0	51.0	0.97785	1.66211	14.366	0.1	9.6	0.918	18.1	329.4	0.3	83.1	114.2E
APR 13	9	14	10.7	18	49	51.2	0.99452	1.66154	14.497	0.1	9.4	0.915	18.3	310.8	0.5	84.0	112.6E
APR 15	9	15	48.4	18	38	15.8	1.01134	1.66092	14.614	0.2	9.3	0.913	18.5	292.1	0.8	84.9	111.1E
APR 17	9	17	33.9	18	26	5.8	1.02828	1.66027	14.718	0.2	9.1	0.911	18.7	273.4	1.1	85.8	109.6E
APR 19	9	19	27.1	18	13	22.1	1.04533	1.65958	14.810	0.2	9.0	0.909	18.9	254.7	1.4	86.7	108.1E
APR 21	9	21	27.5	18	0	5.3	1.06249	1.65885	14.891	0.3	8.8	0.907	19.1	235.9	1.7	87.5	106.7E
APR 23	9	23	34.7	17	46	16.1	1.07973	1.65809	14.960	0.3	8.7	0.906	19.3	217.1	2.1	88.4	105.3E
APR 25	9	25	48.5	17	31	54.8	1.09704	1.65728	15.017	0.4	8.5	0.904	19.5	198.3	2.4	89.3	103.9E
APR 27	9	28	8.6	17	17	1.9	1.11442	1.65644	15.061	0.4	8.4	0.903	19.7	179.5	2.8	90.2	102.6E
APR 29	9	30	34.8	17	1	37.9	1.13183	1.65556	15.092	0.4	8.3	0.901	20.0	160.6	3.2	91.1	101.3E
MAY 1	9	33	6.6	16	45	43.4	1.14928	1.65464	15.111	0.5	8.2	0.900	20.2	141.7	3.6	91.9	100.0E
MAY 3	9	35	44.0	16	29	18.9	1.16674	1.65368	15.118	0.5	8.0	0.899	20.4	122.7	4.0	92.8	98.7E
MAY 5	9	38	26.4	16	12	25.0	1.18420	1.65269	15.114	0.5	7.9	0.898	20.6	103.8	4.5	93.7	97.5E
MAY 7	9	41	13.8	15	55	2.3	1.20165	1.65165	15.099	0.6	7.8	0.897	20.9	84.8	4.9	94.6	96.3E
MAY 9	9	44	5.8	15	37	11.5	1.21908	1.65058	15.076	0.6	7.7	0.897	21.1	65.8	5.4	95.5	95.1E
MAY 11	9	47	2.1	15	18	52.9	1.23647	1.64948	15.044	0.6	7.6	0.896	21.3	46.7	5.9	96.4	94.0E
MAY 13	9	50	2.6	15	0	7.2	1.25383	1.64833	15.006	0.7	7.5	0.895	21.6	27.7	6.4	97.3	92.8E
MAY 15	9	53	6.9	14	40	54.8	1.27114	1.64716	14.963	0.7	7.4	0.895	21.8	8.6	6.9	98.2	91.7E
MAY 17	9	56	15.0	14	21	16.1	1.28839	1.64594	14.916	0.7	7.3	0.895	22.0	349.5	7.4	99.1	90.6E
MAY 19	9	59	26.5	14	1	11.6	1.30560	1.64469	14.866	0.7	7.2	0.894	22.3	330.3	7.9	100.0	89.5E
MAY 21	10	2	41.4	13	40	41.4	1.32274	1.64340	14.811	0.8	7.1	0.894	22.5	311.2	8.4	100.9	88.4E
MAY 23	10	5	59.4	13	19	45.8	1.33981	1.64208	14.750	0.8	7.0	0.894	22.7	292.0	9.0	101.8	87.4E
MAY 25	10	9	20.6	12	58	25.2	1.35681										

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	11 20 24.8	5 3 59.4		1.65794	1.60864	12.576	1.2	5.7	0.903	25.9	265.2	21.1	120.1	69.2E
JUL 4	11 24 27.5	4 35 59.0		1.67239	1.60665	12.435	1.2	5.6	0.904	26.0	245.7	21.7	121.0	68.4E
JUL 6	11 28 31.8	4 7 44.4		1.68667	1.60463	12.291	1.2	5.6	0.905	26.0	226.3	22.3	121.9	67.7E
JUL 8	11 32 37.5	3 39 16.2		1.70078	1.60258	12.147	1.2	5.5	0.906	26.1	206.8	22.9	122.9	66.9E
JUL 10	11 36 44.8	3 10 35.2		1.71473	1.60051	12.003	1.2	5.5	0.907	26.1	187.3	23.6	123.8	66.1E
JUL 12	11 40 53.5	2 41 42.0		1.72851	1.59841	11.861	1.3	5.4	0.908	26.1	167.7	24.2	124.8	65.3E
JUL 14	11 45 3.7	2 12 37.2		1.74213	1.59628	11.720	1.3	5.4	0.909	26.1	148.2	24.8	125.7	64.6E
JUL 16	11 49 15.3	1 43 21.6		1.75559	1.59413	11.580	1.3	5.3	0.910	26.1	128.7	25.4	126.7	63.8E
JUL 18	11 53 28.5	1 13 55.7		1.76888	1.59196	11.440	1.3	5.3	0.911	26.1	109.1	26.0	127.6	63.1E
JUL 20	11 57 43.1	0 44 19.8		1.78202	1.58976	11.298	1.3	5.3	0.912	26.1	89.6	26.6	128.6	62.3E
JUL 22	12 1 59.3	0 14 34.8		1.79498	1.58754	11.154	1.3	5.2	0.913	26.1	70.1	27.2	129.6	61.6E
JUL 24	12 6 17.1	0-15-18.9		1.80778	1.58529	11.007	1.3	5.2	0.914	26.0	50.5	27.7	130.5	60.9E
JUL 26	12 10 36.5	0-45-20.3		1.82041	1.58303	10.858	1.3	5.1	0.915	25.9	30.9	28.3	131.5	60.2E
JUL 28	12 14 57.4	-1-15-28.8		1.83287	1.58074	10.707	1.3	5.1	0.916	25.9	11.4	28.9	132.4	59.5E
JUL 30	12 19 20.0	-1-45-43.5		1.84515	1.57843	10.553	1.3	5.1	0.918	25.8	351.8	29.4	133.4	58.7E
AUG 1	12 23 44.2	-2-16-3.6		1.85725	1.57610	10.398	1.3	5.0	0.919	25.7	332.2	30.0	134.4	58.0E
AUG 3	12 28 10.0	-2-46-28.2		1.86917	1.57375	10.242	1.3	5.0	0.920	25.5	312.6	30.5	135.4	57.3E
AUG 5	12 32 37.5	-3-16-56.6		1.88091	1.57138	10.087	1.4	5.0	0.921	25.4	293.0	31.0	136.4	56.7E
AUG 7	12 37 6.6	-3-47-27.9		1.89247	1.56899	9.932	1.4	4.9	0.922	25.3	273.4	31.5	137.3	56.0E
AUG 9	12 41 37.4	-4-18-1.0		1.90386	1.56659	9.781	1.4	4.9	0.923	25.1	253.9	32.0	138.3	55.3E
AUG 11	12 46 9.9	-4-48-35.3		1.91507	1.56416	9.632	1.4	4.9	0.925	24.9	234.3	32.5	139.3	54.6E
AUG 13	12 50 44.1	-5-19-9.7		1.92611	1.56172	9.485	1.4	4.9	0.926	24.7	214.7	33.0	140.3	53.9E
AUG 15	12 55 20.0	-5-49-43.6		1.93698	1.55927	9.339	1.4	4.8	0.927	24.5	195.1	33.4	141.3	53.3E
AUG 17	12 59 57.9	-6-20-16.2		1.94768	1.55680	9.193	1.4	4.8	0.928	24.3	175.5	33.9	142.3	52.6E
AUG 19	13 4 37.6	-6-50-46.6		1.95822	1.55431	9.046	1.4	4.8	0.929	24.1	155.9	34.3	143.3	51.9E
AUG 21	13 9 19.3	-7-21-14.0		1.96858	1.55181	8.897	1.4	4.8	0.930	23.9	136.3	34.7	144.3	51.3E
AUG 23	13 14 2.9	-7-51-37.4		1.97877	1.54930	8.748	1.4	4.7	0.932	23.6	116.7	35.1	145.3	50.6E
AUG 25	13 18 48.6	-8-21-55.9		1.98879	1.54678	8.597	1.4	4.7	0.933	23.3	97.1	35.5	146.3	50.0E
AUG 27	13 23 36.3	-8-52-8.2		1.99863	1.54424	8.445	1.4	4.7	0.934	23.1	77.4	35.8	147.3	49.4E
AUG 29	13 28 26.1	-9-22-13.5		2.00830	1.54169	8.291	1.4	4.7	0.935	22.8	57.8	36.2	148.3	48.7E
AUG 31	13 33 18.0	-9-52-10.7		2.01779	1.53914	8.138	1.4	4.6	0.936	22.5	38.2	36.5	149.4	48.1E
SEP 2	13 38 12.0	-10-21-58.5		2.02710	1.53657	7.985	1.4	4.6	0.938	22.1	18.6	36.8	150.4	47.5E
SEP 4	13 43 8.3	-10-51-36.1		2.03624	1.53399	7.835	1.4	4.6	0.939	21.8	359.0	37.1	151.4	46.8E
SEP 6	13 48 6.7	-11-21-2.0		2.04520	1.53141	7.687	1.4	4.6	0.940	21.4	339.4	37.3	152.5	46.2E
SEP 8	13 53 7.3	-11-50-15.3		2.05400	1.52882	7.543	1.4	4.6	0.941	21.1	319.8	37.6	153.5	45.6E
SEP 10	13 58 10.2	-12-19-14.6		2.06263	1.52623	7.402	1.4	4.5	0.942	20.7	300.3	37.8	154.5	45.0E
SEP 12	14 3 15.5	-12-47-59.0		2.07110	1.52363	7.264	1.4	4.5	0.943	20.3	280.7	38.0	155.6	44.4E
SEP 14	14 8 23.1	-13-16-27.3		2.07941	1.52102	7.126	1.4	4.5	0.945	19.9	261.1	38.2	156.6	43.7E
SEP 16	14 13 33.1	-13-44-38.5		2.08756	1.51841	6.988	1.4	4.5	0.946	19.5	241.5	38.3	157.7	43.1E
SEP 18	14 18 45.7	-14-12-31.3		2.09556	1.51580	6.850	1.4	4.5	0.947	19.1	221.9	38.5	158.7	42.5E
SEP 20	14 24 0.8	-14-40-4.6		2.10339	1.51319	6.712	1.4	4.5	0.948	18.7	202.3	38.6	159.8	41.9E
SEP 22	14 29 18.4	-15-7-17.0		2.11106	1.51057	6.574	1.4	4.4	0.949	18.2	182.7	38.7	160.8	41.3E
SEP 24	14 34 38.6	-15-34-7.1		2.11857	1.50796	6.434	1.4	4.4	0.950	17.8	163.1	38.7	161.9	40.7E
SEP 26	14 40 1.5	-16-0-33.8		2.12593	1.50535	6.294	1.4	4.4	0.952	17.3	143.6	38.8	163.0	40.1E
SEP 28	14 45 27.0	-16-26-35.5		2.13311	1.50273	6.153	1.4	4.4	0.953	16.8	124.0	38.8	164.0	39.6E
SEP 30	14 50 55.1	-16-52-11.1		2.14014	1.50013	6.015	1.4	4.4	0.954	16.3	104.4	38.8	165.1	39.0E
OCT 2	14 56 25.9	-17-17-19.1		2.14701	1.49752	5.878	1.4	4.4	0.955	15.8	84.8	38.8	166.2	38.4E
OCT 4	15 1 59.4	-17-41-58.0		2.15372	1.49492	5.746	1.4	4.3	0.956	15.3	65.3	38.7	167.3	37.8E
OCT 6	15 7 35.5	-18-6-6.4		2.16029	1.49233	5.617	1.4	4.3	0.957	14.8	45.7	38.6	168.4	37.2E
OCT 8	15 13 14.2	-18-29-42.9		2.16670	1.48974	5.492	1.4	4.3	0.958	14.3	26.1	38.5	169.4	36.7E
OCT 10	15 18 55.7	-18-52-46.0		2.17297	1.48716	5.369	1.4	4.3	0.959	13.7	6.6	38.4	170.5	36.1E
OCT 12	15 24 39.9	-19-15-14.6		2.17911	1.48458	5.249	1.4	4.3	0.960	13.2	347.0	38.2	171.6	35.5E
OCT 14	15 30 26.9	-19-37-7.1		2.18510	1.48202	5.130	1.4	4.3	0.961	12.6	327.5	38.0	172.7	34.9E
OCT 16	15 36 16.6	-19-58-22.3		2.19096	1.47947	5.012	1.4	4.3	0.962	12.1	307.9	37.8	173.8	34.4E
OCT 18	15 42 9.0	-20-18-58.7		2.19668	1.47693	4.895	1.4	4.3	0.963	11.5	288.3	37.6	175.0	33.8E
OCT 20	15 48 4.2	-20-38-54.8		2.20227	1.47440	4.777	1.4	4.3	0.964	10.9	268.8	37.3	176.1	33.3E
OCT 22	15 54 2.1	-20-58-9.2		2.20772	1.47188	4.659	1.4	4.2	0.965	10.3	249.2	37.0	177.2	32.7E
OCT 24	16 0 2.7	-21-16-40.4		2.21303	1.46938	4.540	1.4	4.2	0.966	9.8	229.7	36.7	178.3	32.1E
OCT 26	16 6 5.9	-21-34-27.2		2.21821	1.46690	4.422	1.4	4.2	0.967	9.1	210.1	36.4	179.4	31.6E
OCT 28	16 12 11.8	-21-51-28.1		2.22325	1.46443	4.305	1.4	4.2	0.968	8.5	190.6	36.0	180.6	31.0E
OCT 30	16 18 20.2	-22-7-41.7		2.22815	1.46197	4.191	1.4	4.2	0.969	7.9	171.0	35.7	181.7	30.5E
NOV 1	16 24 31.1	-22-23-6.6		2.23293	1.45954	4.081	1.4	4.2	0.970	7.3	151.5	35.2	182.8	29.9E
NOV 3	16 30 44.4	-22-37-41.4		2.23758	1.45713	3.974	1.4	4.2	0.971	6.7	131.9	34.8	184.0	29.4E
NOV 5	16 36 60.0	-22-51-24.7		2.24211	1.45473	3.872	1.4	4.2	0.972	6.1	112.4	34.4	185.1	28.9E
NOV 7	16 43 17.9	-23-4-15.5		2.24653	1.45236	3.774	1.4	4.2	0.973	5.4	92.8	33.9	186.2	28.3E
NOV 9	16 49 38.1	-23-16-12.3		2.25083	1.45001	3.678	1.3	4.2	0.974	4.8	73.3	33.4	187.4	27.8E
NOV 11	16 56 0.4	-23-27-14.2		2.25503	1.44768	3.584	1.3	4.2	0.975	4.1	53.7	32.8	188.6	27.3E
NOV 13	17 2 24.9	-23-37-19.9		2.25911	1.44538	3.492	1.3	4.1	0.976	3.5	34.2	32.3	189.7	26.7E
NOV 15	17 8 51.4	-23-46-28.4		2.26310	1.44311	3.401	1.3	4.1	0.977	2.8	14.6	31.7	190.9	26.2E
NOV 17	17 15 19.7	-23-54-38.5		2.26697	1.44086	3.310	1.3	4.1	0.977	2.2	355.0	31.1	192.0	25.7E
NOV 19	17 21 50.0	-24-1-49.3		2.27074	1.43863	3.220	1.3	4.1	0.978	1.5	335.5	30.5	193.2	25.1E
NOV 21	17 28 21.9	-24-7-59.8		2.27441	1.43644	3.129	1.3	4.1	0.979	0.9	315.9	29.9	194.4	24.6E
NOV 23	17 34 55.5	-24-13-9.2		2.27797	1.43428	3.038	1.3	4.1	0.980	0.2	296.3	29.2	195.6	24.1E
NOV 25	17 41 30.6	-24-17-16.7		2.28143	1.43214	2.948	1.3	4.1	0.981	-0.5	276.8	28.5	196.7	23.6E
NOV 27	17 48 7.1	-24-20-21.8		2.28478	1.43004	2.860	1.3	4.1	0.981	-1.1	257.2	27.8	197.9	23.1E
NOV 29	17 54 44.7	-24-22-23.6		2.28804	1.42797	2.777	1.3	4.1	0.982	-1.8	237.6	27.1	199.1	22.5E
DEC 1	18 1 23.3	-24-23-21.5		2.29120	1.42593	2.697	1.3	4.1	0.983	-2.5	218.0	26.4	200.3	22.0E
DEC 3	18 8 2.9	-24-23-15.0		2.29427	1.42393	2.622	1.3	4.1	0.984	-3.1	198.4	25.6	201.5	21.5E
DEC 5	18 14 43.3	-24-22-3.7												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong	
JAN 2	19 48	23.2	-22-11-39.5	2.33138	1.39868	1.713	1.2	4.0	0.993	-12.8	263.9	12.6	219.8	14.1E	
JAN 4	19 55	0.6	-21-54-26.4	2.33334	1.39736	1.669	1.2	4.0	0.993	-13.4	244.2	11.6	221.0	13.7E	
JAN 6	20 1	36.8	-21-36-13.7	2.33524	1.39608	1.629	1.2	4.0	0.993	-14.0	224.5	10.6	222.2	13.2E	
JAN 8	20 8	11.8	-21-17-2.5	2.33710	1.39485	1.590	1.2	4.0	0.994	-14.6	204.8	9.7	223.5	12.7E	
JAN 10	20 14	45.6	-20-56-53.7	2.33891	1.39368	1.553	1.2	4.0	0.994	-15.2	185.1	8.7	224.7	12.2E	
JAN 12	20 21	18.0	-20-35-48.4	2.34069	1.39255	1.516	1.2	4.0	0.995	-15.7	165.3	7.7	226.0	11.8E	
JAN 14	20 27	49.0	-20-13-47.8	2.34242	1.39148	1.479	1.2	4.0	0.995	-16.3	145.6	6.7	227.2	11.3E	
JAN 16	20 34	18.5	-19-50-53.0	2.34410	1.39045	1.441	1.2	4.0	0.996	-16.8	125.8	5.7	228.5	10.8E	
JAN 18	20 40	46.6	-19-27-5.4	2.34574	1.38948	1.402	1.2	4.0	0.996	-17.4	106.0	4.7	229.7	10.4E	
JAN 20	20 47	13.1	-19-2-26.6	2.34734	1.38857	1.363	1.2	4.0	0.996	-17.9	86.3	3.7	231.0	9.9E	
JAN 22	20 53	38.0	-18-36-57.8	2.34889	1.38771	1.323	1.2	4.0	0.997	-18.4	66.5	2.7	232.2	9.5E	
JAN 24	21 0	1.2	-18-10-40.8	2.35040	1.38690	1.286	1.1	4.0	0.997	-18.9	46.7	1.7	233.5	9.0E	
JAN 26	21 6	22.7	-17-43-36.8	2.35187	1.38614	1.251	1.1	4.0	0.997	-19.4	26.9	0.7	234.8	8.6E	
JAN 28	21 12	42.5	-17-15-47.4	2.35329	1.38545	1.220	1.1	4.0	0.997	-19.8	7.0	359.7	236.0	8.1E	
JAN 30	21 19	0.5	-16-47-14.2	2.35469	1.38480	1.191	1.1	4.0	0.998	-20.3	347.2	358.7	237.3	7.7E	
FEB 1	21 25	16.8	-16-17-58.6	2.35605	1.38422	1.165	1.1	4.0	0.998	-20.7	327.4	357.7	238.6	7.2E	
FEB 3	21 31	31.3	-15-48-2.4	2.35738	1.38369	1.141	1.1	4.0	0.998	-21.2	307.5	356.6	239.8	6.8E	
FEB 5	21 37	44.1	-15-17-27.1	2.35868	1.38321	1.118	1.1	4.0	0.998	-21.6	287.7	355.6	241.1	6.3E	
FEB 7	21 43	55.1	-14-46-14.2	2.35996	1.38280	1.096	1.1	4.0	0.999	-22.0	267.8	354.6	242.4	5.9E	
FEB 9	21 50	4.4	-14-14-25.4	2.36121	1.38244	1.075	1.1	4.0	0.999	-22.3	247.9	353.6	243.6	5.5E	
FEB 11	21 56	12.1	-13-42-2.1	2.36244	1.38214	1.052	1.1	4.0	0.999	-22.7	228.0	352.6	244.9	5.0E	
FEB 13	22 2	18.1	-13-9-6.0	2.36364	1.38189	1.028	1.1	4.0	0.999	-23.0	208.1	351.6	246.2	4.6E	
FEB 15	22 8	22.5	-12-35-38.9	2.36482	1.38170	1.002	1.1	4.0	0.999	-23.4	188.2	350.6	247.4	4.2E	
FEB 17	22 14	25.4	-12-1-42.4	2.36596	1.38158	0.974	1.1	4.0	0.999	-23.7	168.3	349.6	248.7	3.7E	
FEB 19	22 20	26.6	-11-27-18.4	2.36707	1.38150	0.945	1.1	4.0	1.000	-23.9	148.4	348.6	250.0	3.3E	
FEB 21	22 26	26.4	-10-52-28.6	2.36814	1.38149	0.916	1.1	4.0	1.000	-24.2	128.5	347.6	251.2	2.9E	
FEB 23	22 32	24.6	-10-17-14.7	2.36919	1.38153	0.889	1.1	4.0	1.000	-24.5	108.6	346.6	252.5	2.5E	
FEB 25	22 38	21.3	-9-41-38.3	2.37020	1.38164	0.863	1.1	4.0	1.000	-24.7	88.6	345.7	253.8	2.1E	
FEB 27	22 44	16.6	-9-5-41.3	2.37118	1.38180	0.839	1.1	4.0	1.000	-24.9	68.7	344.7	255.0	1.7E	
FEB 29	22 50	10.6	-8-29-25.2	2.37214	1.38201	0.816	1.1	3.9	1.000	-25.1	48.7	343.7	256.3	1.4E	
MAR 2	22 56	3.2	-7-52-51.8	2.37307	1.38229	0.795	1.1	3.9	1.000	-25.2	28.8	342.8	257.6	1.1E	
MAR 4	23 1	54.5	-7-16-2.6	2.37397	1.38262	0.775	1.1	3.9	1.000	-25.4	8.8	341.9	258.8	1.0E	
MAR 6	23 7	44.7	-6-38-59.3	2.37486	1.38301	0.755	1.1	3.9	1.000	-25.5	348.9	340.9	260.1	1.0E	
MAR 8	23 13	33.7	-6-1-43.5	2.37572	1.38346	0.734	1.1	3.9	1.000	-25.6	328.9	340.0	261.4	1.2W	
MAR 10	23 19	21.6	-5-24-16.5	2.37655	1.38396	0.712	1.1	3.9	1.000	-25.7	309.0	339.1	262.6	1.5W	
MAR 12	23 25	8.6	-4-46-40.1	2.37736	1.38452	0.688	1.1	3.9	1.000	-25.7	289.0	338.2	263.9	1.8W	
MAR 14	23 30	54.7	-4-8-55.7	2.37814	1.38514	0.661	1.1	3.9	1.000	-25.8	269.0	337.4	265.2	2.2W	
MAR 16	23 36	39.9	-3-31-5.2	2.37889	1.38581	0.630	1.1	3.9	1.000	-25.8	249.1	336.5	266.4	2.6W	
MAR 18	23 42	24.4	-2-53-10.1	2.37960	1.38653	0.597	1.1	3.9	1.000	-25.8	229.1	335.7	267.7	3.0W	
MAR 20	23 48	8.0	-2-15-12.1	2.38027	1.38732	0.562	1.1	3.9	1.000	-25.8	209.2	334.9	269.0	3.4W	
MAR 22	23 53	51.0	-1-37-12.7	2.38090	1.38815	0.527	1.1	3.9	0.999	-25.7	189.2	334.1	270.2	3.8W	
MAR 24	23 59	33.4	0-59-13.5	2.38148	1.38904	0.492	1.1	3.9	0.999	-25.7	169.3	333.3	271.5	4.2W	
MAR 26	0	15.2	0-21-16.0	2.38203	1.38999	0.459	1.1	3.9	0.999	-25.6	149.3	332.5	272.7	4.6W	
MAR 28	0	10	0-16-38.1	2.38254	1.39098	0.425	1.1	3.9	0.999	-25.5	129.4	331.8	274.0	5.0W	
MAR 30	0	16	0-54-27.4	2.38302	1.39203	0.392	1.1	3.9	0.999	-25.3	109.5	331.0	275.2	5.5W	
APR 1	0	22	17.6	1-32-10.4	2.38345	1.39313	0.360	1.2	3.9	0.999	-25.2	89.5	330.3	276.5	5.9W
APR 3	0	27	57.7	2-9-45.7	2.38385	1.39429	0.327	1.2	3.9	0.998	-25.0	69.6	329.7	277.7	6.3W
APR 5	0	33	37.6	2-47-12.0	2.38420	1.39549	0.293	1.2	3.9	0.998	-24.9	49.7	329.0	279.0	6.7W
APR 7	0	39	17.3	3-24-27.9	2.38452	1.39674	0.257	1.2	3.9	0.998	-24.7	29.8	328.4	280.2	7.1W
APR 9	0	44	56.9	4-1-32.0	2.38480	1.39805	0.217	1.2	3.9	0.998	-24.4	9.9	327.8	281.5	7.6W
APR 11	0	50	36.5	4-38-23.1	2.38502	1.39940	0.174	1.2	3.9	0.998	-24.2	350.0	327.2	282.7	8.0W
APR 13	0	56	16.1	5-14-59.6	2.38520	1.40080	0.127	1.2	3.9	0.997	-23.9	330.1	326.7	283.9	8.4W
APR 15	1	1	55.8	5-51-20.0	2.38531	1.40224	0.076	1.2	3.9	0.997	-23.7	310.3	326.1	285.2	8.8W
APR 17	1	7	35.7	6-27-23.1	2.38537	1.40374	0.022	1.2	3.9	0.997	-23.4	290.4	325.6	286.4	9.2W
APR 19	1	13	15.7	7-3-7.5	2.38537	1.40528	-0.033	1.2	3.9	0.996	-23.1	270.6	325.1	287.6	9.7W
APR 21	1	18	56.0	7-38-31.9	2.38530	1.40686	-0.089	1.2	3.9	0.996	-22.7	250.8	324.7	288.8	10.1W
APR 23	1	24	36.5	8-13-34.7	2.38516	1.40849	-0.146	1.2	3.9	0.996	-22.4	230.9	324.3	290.1	10.5W
APR 25	1	30	17.3	8-48-14.9	2.38496	1.41016	-0.203	1.2	3.9	0.995	-22.0	211.1	323.9	291.3	10.9W
APR 27	1	35	58.5	9-22-31.0	2.38469	1.41187	-0.260	1.2	3.9	0.995	-21.7	191.3	323.5	292.5	11.4W
APR 29	1	41	40.0	9-56-21.8	2.38436	1.41362	-0.318	1.2	3.9	0.995	-21.3	171.5	323.2	293.7	11.8W
MAY 1	1	47	22.0	10-29-46.1	2.38396	1.41542	-0.376	1.3	3.9	0.994	-20.9	151.8	322.9	294.9	12.2W
MAY 3	1	53	4.5	11-2-42.8	2.38349	1.41725	-0.435	1.3	3.9	0.994	-20.5	132.0	322.6	296.1	12.7W
MAY 5	1	58	47.5	11-35-10.9	2.38295	1.41913	-0.497	1.3	3.9	0.993	-20.0	112.2	322.3	297.3	13.1W
MAY 7	2	4	31.1	12-7-9.1	2.38234	1.42104	-0.562	1.3	3.9	0.993	-19.6	92.5	322.1	298.5	13.5W
MAY 9	2	10	15.3	12-38-36.4	2.38165	1.42298	-0.631	1.3	3.9	0.993	-19.2	72.8	321.9	299.7	14.0W
MAY 11	2	16	0.2	13-9-31.6	2.38088	1.42497	-0.706	1.3	3.9	0.992	-18.7	53.1	321.8	300.9	14.4W
MAY 13	2	21	45.8	13-39-53.6	2.38002	1.42694	-0.784	1.3	3.9	0.992	-18.2	33.4	321.6	302.1	14.9W
MAY 15	2	27	32.0	14-9-41.2	2.37906	1.42904	-0.867	1.3	3.9	0.991	-17.7	13.7	321.5	303.3	15.3W
MAY 17	2	33	19.0	14-38-53.4	2.37801	1.43112	-0.952	1.3	3.9	0.991	-17.3	354.0	321.4	304.5	15.8W
MAY 19	2	39	6.6	15-7-29.2	2.37687	1.43324	-1.039	1.3	3.9	0.990	-16.8	334.3	321.4	305.7	16.2W
MAY 21	2	44	55.0	15-35-27.6	2.37561	1.43539	-1.126	1.3	3.9	0.990	-16.2	314.7	321.4	306.9	16.6W
MAY 23	2	50	44.0	16-2-47.3	2.37426	1.43757	-1.215	1.3	3.9	0.989	-15.7	295.0	321.4	308.0	17.1W
MAY 25	2	56	33.8	16-29-27.6	2.37281	1.43978	-1.305	1.3	3.9	0.989	-15.2	275.4	321.4	309.2	17.6W
MAY 27	3	2	24.2	16-55-27.5	2.37125	1.44201	-1.395	1.4	4.0	0.988	-14.7	255.8	321.4	310.4	18.0W
MAY 29	3	8	15.3	17-20-45.9	2.36958	1.44427	-1.486	1.4	4.0	0.988	-14.1	236.1	321.5	311.5	18.5W
MAY 31	3	14	7.1	17-45-22.2	2.36782	1.44656	-1.578	1.4	4.0	0.987	-13.6	216.5	321.6	312.7	18.9W
JUN 2	3	19	59.6	18-9-15.6	2.36594	1.44888	-1.671	1.4	4.0	0.986	-13.0	196.9	321.8	313.8	19.4W
JUN 4	3	25	52.8	18-32-25.4	2.36395	1.45121	-1.768	1.4	4.0	0					

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 2	4 49 12.2	22 34 12.6	2.32228	1.48588	-3.446	1.5	4.0	0.976	-4.2	264.1	326.6	330.7	26.7W		
JUL 4	4 55 11.2	22 45 16.1	2.31823	1.48845	-3.580	1.5	4.0	0.975	-3.6	244.6	327.1	331.8	27.2W		
JUL 6	5 1 10.1	22 55 28.3	2.31401	1.49104	-3.719	1.5	4.0	0.974	-3.0	225.2	327.6	332.9	27.7W		
JUL 8	5 7 9.0	23 4 49.3	2.30963	1.49363	-3.863	1.5	4.1	0.973	-2.4	205.7	328.2	334.0	28.2W		
JUL 10	5 13 7.7	23 13 18.8	2.30509	1.49622	-4.011	1.5	4.1	0.973	-1.8	186.3	328.7	335.1	28.8W		
JUL 12	5 19 6.1	23 20 57.1	2.30037	1.49882	-4.161	1.5	4.1	0.972	-1.2	166.8	329.2	336.2	29.3W		
JUL 14	5 25 4.1	23 27 44.2	2.29547	1.50143	-4.315	1.5	4.1	0.971	-0.7	147.4	329.8	337.3	29.8W		
JUL 16	5 31 1.8	23 33 40.1	2.29040	1.50404	-4.469	1.5	4.1	0.970	-0.1	127.9	330.4	338.3	30.4W		
JUL 18	5 36 58.9	23 38 45.1	2.28515	1.50665	-4.625	1.5	4.1	0.969	0.5	108.5	331.0	339.4	30.9W		
JUL 20	5 42 55.3	23 42 59.2	2.27971	1.50926	-4.782	1.5	4.1	0.968	1.1	89.1	331.6	340.5	31.5W		
JUL 22	5 48 51.1	23 46 22.7	2.27410	1.51187	-4.939	1.5	4.1	0.967	1.7	69.6	332.3	341.5	32.0W		
JUL 24	5 54 46.1	23 48 55.9	2.26830	1.51448	-5.096	1.5	4.1	0.966	2.3	50.2	332.9	342.6	32.6W		
JUL 26	6 0 40.2	23 50 39.0	2.26233	1.51709	-5.252	1.5	4.1	0.965	2.9	30.8	333.5	343.6	33.1W		
JUL 28	6 6 33.4	23 51 32.6	2.25617	1.51970	-5.410	1.5	4.2	0.964	3.5	11.4	334.2	344.7	33.7W		
JUL 30	6 12 25.6	23 51 37.2	2.24983	1.52230	-5.568	1.5	4.2	0.963	4.0	351.9	334.9	345.7	34.3W		
AUG 1	6 18 16.8	23 50 53.0	2.24331	1.52490	-5.730	1.5	4.2	0.962	4.6	332.5	335.6	346.8	34.8W		
AUG 3	6 24 6.9	23 49 20.6	2.23659	1.52750	-5.897	1.5	4.2	0.961	5.2	313.1	336.3	347.8	35.4W		
AUG 5	6 29 55.8	23 47 0.5	2.22968	1.53009	-6.067	1.5	4.2	0.960	5.7	293.7	337.0	348.9	36.0W		
AUG 7	6 35 43.5	23 43 53.3	2.22257	1.53267	-6.241	1.5	4.2	0.959	6.3	274.3	337.7	349.9	36.6W		
AUG 9	6 41 29.9	23 39 59.8	2.21526	1.53525	-6.418	1.5	4.2	0.958	6.9	254.9	338.4	350.9	37.2W		
AUG 11	6 47 14.9	23 35 20.7	2.20775	1.53782	-6.598	1.5	4.2	0.957	7.4	235.5	339.1	351.9	37.8W		
AUG 13	6 52 58.4	23 29 56.6	2.20002	1.54038	-6.778	1.5	4.3	0.956	8.0	216.1	339.8	353.0	38.4W		
AUG 15	6 58 40.4	23 23 48.3	2.19209	1.54293	-6.959	1.5	4.3	0.955	8.5	196.6	340.6	354.0	39.0W		
AUG 17	7 4 20.7	23 16 56.5	2.18395	1.54546	-7.140	1.5	4.3	0.954	9.0	177.2	341.3	355.0	39.6W		
AUG 19	7 9 59.3	23 9 22.0	2.17559	1.54799	-7.321	1.5	4.3	0.953	9.6	157.8	342.1	356.0	40.2W		
AUG 21	7 15 36.2	23 1 5.7	2.16703	1.55051	-7.501	1.5	4.3	0.952	10.1	138.4	342.8	357.0	40.9W		
AUG 23	7 21 11.3	22 52 8.4	2.15827	1.55301	-7.680	1.5	4.3	0.951	10.6	119.0	343.6	358.0	41.5W		
AUG 25	7 26 44.6	22 42 31.0	2.14929	1.55550	-7.858	1.5	4.4	0.950	11.1	99.6	344.4	359.0	42.1W		
AUG 27	7 32 16.0	22 32 14.4	2.14011	1.55798	-8.037	1.5	4.4	0.949	11.6	80.2	345.1	0.0	42.8W		
AUG 29	7 37 45.5	22 21 19.5	2.13072	1.56044	-8.218	1.5	4.4	0.948	12.1	60.8	345.9	1.0	43.4W		
AUG 31	7 43 13.1	22 9 47.1	2.12113	1.56288	-8.401	1.5	4.4	0.947	12.6	41.4	346.7	2.0	44.1W		
SEP 2	7 48 38.7	21 57 38.1	2.11132	1.56531	-8.588	1.5	4.4	0.946	13.1	22.0	347.5	3.0	44.8W		
SEP 4	7 54 2.4	21 44 53.7	2.10129	1.56772	-8.778	1.5	4.5	0.944	13.5	2.6	348.2	4.0	45.4W		
SEP 6	7 59 24.0	21 31 34.7	2.09104	1.57012	-8.970	1.5	4.5	0.943	14.0	343.2	349.0	5.0	46.1W		
SEP 8	8 4 43.6	21 17 42.5	2.08056	1.57250	-9.163	1.5	4.5	0.942	14.4	323.8	349.8	6.0	46.8W		
SEP 10	8 10 1.1	21 3 17.9	2.06987	1.57485	-9.357	1.5	4.5	0.941	14.9	304.4	350.6	6.9	47.5W		
SEP 12	8 15 16.4	20 48 22.1	2.05895	1.57719	-9.550	1.5	4.5	0.940	15.3	284.9	351.4	7.9	48.2W		
SEP 14	8 20 29.5	20 32 56.2	2.04781	1.57951	-9.743	1.5	4.6	0.939	15.8	265.5	352.2	8.9	48.9W		
SEP 16	8 25 40.5	20 17 1.1	2.03644	1.58181	-9.935	1.5	4.6	0.938	16.2	246.1	352.9	9.9	49.6W		
SEP 18	8 30 49.1	20 0 37.9	2.02486	1.58408	-10.124	1.5	4.6	0.936	16.6	226.7	353.7	10.8	50.3W		
SEP 20	8 35 55.5	19 43 47.8	2.01305	1.58634	-10.311	1.5	4.7	0.935	17.0	207.3	354.5	11.8	51.0W		
SEP 22	8 40 59.7	19 26 31.9	2.00104	1.58857	-10.496	1.5	4.7	0.934	17.4	187.9	355.3	12.8	51.7W		
SEP 24	8 46 1.6	19 8 51.2	1.98881	1.59078	-10.680	1.5	4.7	0.933	17.8	168.5	356.1	13.7	52.5W		
SEP 26	8 51 1.1	18 50 46.7	1.97637	1.59296	-10.864	1.5	4.7	0.932	18.1	149.1	356.9	14.7	53.2W		
SEP 28	8 55 58.5	18 32 19.4	1.96371	1.59512	-11.049	1.4	4.8	0.931	18.5	129.7	357.7	15.6	54.0W		
SEP 30	9 0 53.6	18 13 30.4	1.95084	1.59726	-11.236	1.4	4.8	0.930	18.9	110.3	358.4	16.6	54.7W		
OCT 2	9 5 46.4	17 54 20.7	1.93775	1.59937	-11.425	1.4	4.8	0.928	19.2	90.9	359.2	17.5	55.5W		
OCT 4	9 10 37.0	17 34 51.7	1.92445	1.60145	-11.614	1.4	4.9	0.927	19.5	71.4	360.0	18.5	56.2W		
OCT 6	9 15 25.3	17 15 4.4	1.91092	1.60351	-11.804	1.4	4.9	0.926	19.9	52.0	0.8	19.4	57.0W		
OCT 8	9 20 11.3	16 55 0.2	1.89718	1.60554	-11.993	1.4	4.9	0.925	20.2	32.6	1.5	20.4	57.8W		
OCT 10	9 24 54.9	16 34 40.1	1.88322	1.60755	-12.180	1.4	5.0	0.924	20.5	13.2	2.3	21.3	58.6W		
OCT 12	9 29 36.2	16 14 5.2	1.86904	1.60952	-12.366	1.4	5.0	0.923	20.8	353.8	3.0	22.2	59.4W		
OCT 14	9 34 15.1	15 53 16.7	1.85465	1.61147	-12.548	1.4	5.1	0.922	21.0	334.4	3.8	23.2	60.2W		
OCT 16	9 38 51.6	15 32 15.9	1.84005	1.61339	-12.727	1.4	5.1	0.921	21.3	315.0	4.5	24.1	61.0W		
OCT 18	9 43 25.7	15 11 3.7	1.82525	1.61529	-12.901	1.4	5.1	0.920	21.6	295.6	5.3	25.0	61.9W		
OCT 20	9 47 57.5	14 49 41.4	1.81025	1.61715	-13.072	1.3	5.2	0.919	21.8	276.2	6.0	25.9	62.7W		
OCT 22	9 52 26.8	14 28 10.0	1.79506	1.61898	-13.239	1.3	5.2	0.917	22.0	256.8	6.8	26.9	63.5W		
OCT 24	9 56 53.7	14 6 30.6	1.77967	1.62078	-13.405	1.3	5.3	0.916	22.3	237.4	7.5	27.8	64.4W		
OCT 26	10 1 18.2	13 44 44.1	1.76409	1.62255	-13.569	1.3	5.3	0.915	22.5	218.1	8.2	28.7	65.3W		
OCT 28	10 5 40.4	13 22 51.5	1.74832	1.62429	-13.733	1.3	5.4	0.914	22.7	198.7	8.9	29.6	66.1W		
OCT 30	10 10 0.1	13 0 54.1	1.73236	1.62600	-13.897	1.3	5.4	0.913	22.9	179.3	9.6	30.6	67.0W		
NOV 1	10 14 17.5	12 38 53.1	1.71622	1.62768	-14.060	1.3	5.5	0.913	23.1	159.9	10.3	31.5	67.9W		
NOV 3	10 18 32.5	12 16 49.7	1.69988	1.62933	-14.221	1.2	5.5	0.912	23.2	140.6	11.0	32.4	68.8W		
NOV 5	10 22 44.9	11 54 45.1	1.68337	1.63094	-14.379	1.2	5.6	0.911	23.4	121.2	11.7	33.3	69.7W		
NOV 7	10 26 54.9	11 32 40.5	1.66667	1.63252	-14.535	1.2	5.6	0.910	23.5	101.9	12.4	34.2	70.6W		
NOV 9	10 31 2.3	11 10 37.1	1.64979	1.63406	-14.686	1.2	5.7	0.909	23.7	82.5	13.1	35.1	71.6W		
NOV 11	10 35 7.1	10 48 36.1	1.63274	1.63558	-14.833	1.2	5.7	0.908	23.8	63.2	13.7	36.0	72.5W		
NOV 13	10 39 9.3	10 26 38.7	1.61553	1.63706	-14.973	1.2	5.8	0.907	23.9	43.8	14.4	36.9	73.5W		
NOV 15	10 43 8.8	10 4 46.2	1.59815	1.63850	-15.106	1.1	5.9	0.907	24.0	24.5	15.0	37.8	74.4W		
NOV 17	10 47 5.6	9 42 59.7	1.58063	1.63991	-15.233	1.1	5.9	0.906	24.1	5.2	15.7	38.7	75.4W		
NOV 19	10 50 59.6	9 21 20.4	1.56296	1.64129	-15.354	1.1	6.0	0.905	24.2	345.9	16.3	39.6	76.4W		
NOV 21	10 54 50.8	8 59 49.3	1.54516	1.64263	-15.471	1.1	6.1	0.905	24.3	326.6	16.9	40.5	77.4W		
NOV 23	10 58 39.3	8 38 27.3	1.52723	1.64393	-15.583	1.1	6.1	0.904	24.3	307.3	17.5	41.4	78.4W		
NOV 25	11 2 24.9	8 17 15.8	1.50916	1.64520	-15.693	1.0	6.2	0.904	24.4	288.1	18.1	42.3	79.5W		
NOV 27	11 6 7.5	7 56 15.8	1.49097	1.64644	-15.799	1.0	6.3	0.903	24.4	268.8	18.6	43.2	80.5W		
NOV 29	11 9 47.3	7 35 28.6	1.47267	1.64763	-15.902	1.0	6.4	0.903	24.4	249.6	19.2	44.1	81.5W		
DEC 1	11 13 23.9	7 14 55.7	1.45424	1.64880	-16.000	1.0	6.4	0.903	24.5	230.3	19.8	45.0	82.6W		
DEC 3	11 16 57.5	6 54 38.4	1.43570	1.64992	-16.093	0.9	6.5	0.902	24.5	211.1	20.3	45.9	83.7W		
DEC 5	11 20 27.7	6 34 37.9	1.41706	1.65101	-16.180	0.9	6.6	0.902	24.5	191.9	20.8	46.8	84.8W		
DEC 7	11 23 54.6	6 14 55.7	1.39833	1.65206	-16.260	0.9	6.7	0.902	24.5	172.7	21.3	47.7	85.9W		
DEC 9															

Date (O DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 2	12 2 39.1	2 36 57.0	1.15066	1.66229	-16.479	0.5	8.1	0.908	23.9	285.1	26.7	59.1	102.0W	
JAN 4	12 5 4.3	2 23 57.6	1.13165	1.66280	-16.429	0.4	8.3	0.909	23.8	266.3	27.0	60.0	103.4W	
JAN 6	12 7 23.6	2 11 38.8	1.11271	1.66328	-16.365	0.4	8.4	0.910	23.7	247.4	27.3	60.9	104.9W	
JAN 8	12 9 36.6	2 0 2.4	1.09385	1.66372	-16.286	0.3	8.6	0.912	23.6	228.6	27.6	61.8	106.3W	
JAN 10	12 11 43.2	1 49 10.2	1.07509	1.66412	-16.190	0.3	8.7	0.913	23.5	209.8	27.9	62.6	107.8W	
JAN 12	12 13 43.1	1 39 4.0	1.05645	1.66447	-16.077	0.2	8.9	0.915	23.4	191.1	28.1	63.5	109.3W	
JAN 14	12 15 35.9	1 29 45.3	1.03795	1.66479	-15.948	0.2	9.0	0.917	23.4	172.4	28.3	64.4	110.8W	
JAN 16	12 17 21.5	1 21 15.8	1.01962	1.66507	-15.802	0.2	9.2	0.919	23.3	153.7	28.5	65.3	112.4W	
JAN 18	12 18 59.5	1 13 37.0	1.00145	1.66531	-15.642	0.1	9.4	0.921	23.2	135.1	28.7	66.1	114.0W	
JAN 20	12 20 29.7	1 6 50.4	0.98349	1.66551	-15.466	0.1	9.5	0.923	23.1	116.5	28.9	67.0	115.7W	
JAN 22	12 21 51.7	1 0 57.9	0.96573	1.66567	-15.274	0.0	9.7	0.926	23.0	97.9	29.0	67.9	117.3W	
JAN 24	12 23 5.2	0 56 1.3	0.94820	1.66580	-15.066	0.0	9.9	0.928	23.0	79.4	29.2	68.8	119.1W	
JAN 26	12 24 10.0	0 52 2.4	0.93093	1.66588	-14.840	-0.1	10.1	0.931	22.9	60.9	29.3	69.6	120.8W	
JAN 28	12 25 5.5	0 49 2.9	0.91393	1.66592	-14.595	-0.1	10.2	0.934	22.8	42.5	29.4	70.5	122.6W	
JAN 30	12 25 51.5	0 47 4.5	0.89722	1.66592	-14.329	-0.2	10.4	0.937	22.7	24.1	29.5	71.4	124.4W	
FEB 1	12 26 27.5	0 46 9.1	0.88083	1.66588	-14.040	-0.2	10.6	0.940	22.7	5.8	29.5	72.3	126.3W	
FEB 3	12 26 53.3	0 46 17.9	0.86479	1.66580	-13.728	-0.3	10.8	0.943	22.6	347.5	29.6	73.1	128.2W	
FEB 5	12 27 8.5	0 47 32.5	0.84913	1.66569	-13.389	-0.3	11.0	0.946	22.6	329.3	29.6	74.0	130.2W	
FEB 7	12 27 12.7	0 49 54.0	0.83387	1.66553	-13.023	-0.4	11.2	0.949	22.5	311.1	29.6	74.9	132.2W	
FEB 9	12 27 5.7	0 53 23.1	0.81905	1.66533	-12.629	-0.4	11.4	0.953	22.5	293.0	29.6	75.7	134.3W	
FEB 11	12 26 47.3	0 58 0.2	0.80471	1.66509	-12.207	-0.5	11.6	0.956	22.5	274.9	29.5	76.6	136.4W	
FEB 13	12 26 17.4	1 3 44.9	0.79086	1.66482	-11.759	-0.6	11.8	0.960	22.5	256.9	29.5	77.5	138.6W	
FEB 15	12 25 36.0	1 10 36.8	0.77755	1.66450	-11.287	-0.6	12.0	0.963	22.4	238.9	29.4	78.4	140.8W	
FEB 17	12 24 42.8	1 18 35.1	0.76480	1.66415	-10.789	-0.7	12.2	0.967	22.4	221.0	29.3	79.2	143.1W	
FEB 19	12 23 38.0	1 27 38.7	0.75263	1.66375	-10.266	-0.7	12.4	0.971	22.4	203.1	29.1	80.1	145.4W	
FEB 21	12 22 21.7	1 37 45.8	0.74109	1.66332	-9.719	-0.8	12.6	0.974	22.4	185.3	29.0	81.0	147.7W	
FEB 23	12 20 53.8	1 48 54.5	0.73019	1.66284	-9.146	-0.8	12.8	0.978	22.4	167.6	28.8	81.9	150.1W	
FEB 25	12 19 14.7	2 1 1.8	0.71997	1.66233	-8.547	-0.9	13.0	0.981	22.5	149.9	28.6	82.7	152.6W	
FEB 27	12 17 24.7	2 14 4.4	0.71045	1.66178	-7.924	-0.9	13.2	0.984	22.5	132.2	28.4	83.6	155.1W	
MAR 1	12 15 24.1	2 27 58.1	0.70167	1.66118	-7.275	-1.0	13.4	0.987	22.5	114.6	28.1	84.5	157.6W	
MAR 3	12 13 13.6	2 42 38.1	0.69365	1.66055	-6.602	-1.0	13.5	0.990	22.6	97.1	27.8	85.4	160.1W	
MAR 5	12 10 53.6	2 57 58.9	0.68642	1.65988	-5.905	-1.1	13.6	0.992	22.6	79.6	27.5	86.3	162.7W	
MAR 7	12 8 25.0	3 13 54.0	0.68001	1.65918	-5.187	-1.1	13.8	0.994	22.7	62.1	27.2	87.1	165.3W	
MAR 9	12 5 48.8	3 30 16.3	0.67445	1.65843	-4.449	-1.2	13.9	0.996	22.7	44.6	26.9	88.0	167.9W	
MAR 11	12 3 6.0	3 46 57.7	0.66974	1.65765	-3.698	-1.2	14.0	0.998	22.8	27.2	26.6	88.9	170.5W	
MAR 13	12 0 17.8	4 3 49.9	0.66591	1.65682	-2.937	-1.2	14.1	0.999	22.8	9.8	26.2	89.8	172.9W	
MAR 15	11 57 25.6	4 20 44.3	0.66295	1.65596	-2.173	-1.3	14.1	0.999	22.9	352.4	25.8	90.7	175.1W	
MAR 17	11 54 30.4	4 37 32.4	0.66088	1.65506	-1.407	-1.3	14.2	1.000	23.0	335.1	25.4	91.5	176.3W	
MAR 19	11 51 33.8	4 54 5.8	0.65970	1.65413	-0.644	-1.3	14.2	0.999	23.0	317.7	25.0	92.4	175.7E	
MAR 21	11 48 36.9	5 10 16.5	0.65939	1.65315	0.113	-1.3	14.2	0.999	23.1	300.3	24.6	93.3	173.8E	
MAR 23	11 45 41.1	5 25 56.5	0.65995	1.65214	0.862	-1.2	14.2	0.998	23.1	283.0	24.2	94.2	171.4E	
MAR 25	11 42 47.7	5 40 58.5	0.66138	1.65109	1.600	-1.2	14.2	0.997	23.2	265.6	23.8	95.1	168.9E	
MAR 27	11 39 57.8	5 55 15.7	0.66364	1.65000	2.325	-1.2	14.1	0.995	23.3	248.2	23.5	96.0	166.3E	
MAR 29	11 37 12.7	6 8 41.7	0.66674	1.64888	3.034	-1.2	14.0	0.993	23.3	230.7	23.1	96.9	163.7E	
MAR 31	11 34 33.4	6 21 11.1	0.67064	1.64772	3.726	-1.1	14.0	0.990	23.4	213.2	22.7	97.8	161.0E	
APR 2	11 32 1.1	6 32 38.7	0.67534	1.64653	4.399	-1.1	13.9	0.987	23.5	195.7	22.4	98.7	158.5E	
APR 4	11 29 36.7	6 43 0.5	0.68080	1.64529	5.050	-1.0	13.8	0.984	23.5	178.2	22.0	99.6	155.9E	
APR 6	11 27 21.1	6 52 12.7	0.68699	1.64403	5.676	-1.0	13.6	0.981	23.6	160.6	21.7	100.5	153.4E	
APR 8	11 25 15.1	7 0 12.2	0.69390	1.64272	6.275	-1.0	13.5	0.978	23.7	142.9	21.4	101.3	150.9E	
APR 10	11 23 19.4	7 6 57.0	0.70148	1.64138	6.844	-0.9	13.4	0.974	23.7	125.2	21.1	102.2	148.5E	
APR 12	11 21 34.6	7 12 25.7	0.70969	1.64001	7.380	-0.9	13.2	0.970	23.8	107.5	20.9	103.1	146.1E	
APR 14	11 20 1.0	7 16 38.0	0.71851	1.63860	7.885	-0.8	13.0	0.966	23.9	89.7	20.7	104.0	143.8E	
APR 16	11 18 39.0	7 19 34.0	0.72790	1.63716	8.359	-0.8	12.9	0.962	24.0	71.8	20.5	105.0	141.5E	
APR 18	11 17 28.6	7 21 14.4	0.73781	1.63568	8.802	-0.7	12.7	0.958	24.0	53.9	20.3	105.9	139.3E	
APR 20	11 16 30.0	7 21 40.4	0.74822	1.63417	9.215	-0.7	12.5	0.954	24.1	35.9	20.2	106.8	137.1E	
APR 22	11 15 43.0	7 20 53.3	0.75909	1.63262	9.601	-0.6	12.3	0.950	24.2	17.8	20.1	107.7	135.0E	
APR 24	11 15 7.7	7 18 54.8	0.77039	1.63105	9.961	-0.6	12.2	0.946	24.3	359.7	20.0	108.6	132.9E	
APR 26	11 14 43.9	7 15 46.6	0.78209	1.62944	10.295	-0.5	12.0	0.942	24.3	341.6	19.9	109.5	130.9E	
APR 28	11 14 31.4	7 11 30.7	0.79416	1.62779	10.607	-0.5	11.8	0.938	24.4	323.4	19.9	110.4	129.0E	
APR 30	11 14 30.0	7 6 9.0	0.80658	1.62612	10.896	-0.5	11.6	0.935	24.5	305.1	19.9	111.3	127.0E	
MAY 2	11 14 39.5	6 59 43.4	0.81932	1.62441	11.164	-0.4	11.4	0.931	24.6	286.8	20.0	112.2	125.2E	
MAY 4	11 14 59.6	6 52 15.8	0.83236	1.62267	11.409	-0.4	11.3	0.927	24.7	268.4	20.0	113.2	123.4E	
MAY 6	11 15 30.1	6 43 47.8	0.84567	1.62090	11.631	-0.3	11.1	0.924	24.8	250.0	20.1	114.1	121.6E	
MAY 8	11 16 10.8	6 34 21.4	0.85922	1.61910	11.831	-0.3	10.9	0.921	24.9	231.5	20.3	115.0	119.9E	
MAY 10	11 17 1.4	6 23 58.7	0.87299	1.61727	12.008	-0.2	10.7	0.918	25.0	213.0	20.4	115.9	118.2E	
MAY 12	11 18 1.5	6 12 41.8	0.88696	1.61541	12.165	-0.2	10.6	0.915	25.0	194.4	20.6	116.9	116.6E	
MAY 14	11 19 10.7	6 0 32.8	0.90109	1.61351	12.302	-0.2	10.4	0.912	25.1	175.8	20.7	117.8	115.0E	
MAY 16	11 20 28.8	5 47 33.9	0.91537	1.61159	12.421	-0.1	10.2	0.909	25.2	157.1	21.0	118.7	113.5E	
MAY 18	11 21 55.2	5 33 47.0	0.92978	1.60965	12.525	-0.1	10.1	0.906	25.3	138.4	21.2	119.6	112.0E	
MAY 20	11 23 29.7	5 19 14.1	0.94430	1.60767	12.614	0.0	9.9	0.904	25.4	119.7	21.4	120.6	110.5E	
MAY 22	11 25 11.9	5 3 57.0	0.95891	1.60566	12.691	0.0	9.8	0.902	25.5	100.9	21.7	121.5	109.1E	
MAY 24	11 27 1.6	4 47 57.5	0.97361	1.60363	12.757	0.0	9.6	0.899	25.6	82.1	22.0	122.5	107.7E	
MAY 26	11 28 58.3	4 31 17.2	0.98838	1.60157	12.813	0.1	9.5	0.897	25.6	63.2	22.3	123.4	106.3E	
MAY 28	11 31 1.8	4 13 57.8	1.00321	1.59949	12.860	0.1	9.3	0.895	25.7	44.3	22.6	124.4	105.0E	
MAY 30	11 33 11.9	3 56 0.7	1.01809	1.59738	12.898	0.1	9.2	0.894	25.8	25.4	23.0	125.3	103.7E	
JUN 1	11 35 28.3	3 37 26.9	1.03300	1.59524	12.926	0.2	9.1	0.892	25.8	6.4	23.3	126.3	102.4E	
JUN 3	11 37 50.8	3 18 17.9	1.04794	1.59308	12.942	0.2	8.9	0.890	25.9	347.4	23.7	127.2	101.1E	
JUN 5	11 40 19.3	2 58 34.7	1.06290	1.59090	12.948	0.2	8.8	0.889	25.9	328.4	24.0	128.2	99.9E	
JUN 7	11 42 53.4	2 38 18.6	1.07785	1.58869	12.943	0.3	8.7	0.888	26.0	309.3	24.4	129.1	98.7E	
JUN 9	11 45 33.0	2 17 31.2	1.09280	1.58646	12.928	0.3	8.6	0.887	26.0					

1997 MARS

Geocentric Planetary Ephemeris

1997 MARS

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	12 19 54.3	-1-59-40.1	1.25410	1.56055	12.382	0.6	7.5	0.880	25.9	78.9	29.5	140.8	86.2E	
JUL 3	12 23 25.8	-2-25-9.2	1.26836	1.55809	12.308	0.6	7.4	0.880	25.8	59.6	30.0	141.8	85.2E	
JUL 5	12 27 1.0	-2-50-55.1	1.28253	1.55561	12.228	0.6	7.3	0.880	25.7	40.2	30.4	142.8	84.3E	
JUL 7	12 30 39.6	-3-16-56.7	1.29661	1.55312	12.144	0.6	7.2	0.880	25.7	20.9	30.8	143.8	83.4E	
JUL 9	12 34 21.8	-3-43-12.8	1.31058	1.55061	12.055	0.7	7.1	0.880	25.6	1.5	31.3	144.8	82.5E	
JUL 11	12 38 7.3	-4-9-42.3	1.32446	1.54809	11.962	0.7	7.1	0.880	25.4	342.1	31.7	145.9	81.7E	
JUL 13	12 41 56.1	-4-36-24.2	1.33822	1.54556	11.867	0.7	7.0	0.880	25.3	322.7	32.1	146.9	80.8E	
JUL 15	12 45 48.2	-5-3-17.3	1.35187	1.54302	11.769	0.7	6.9	0.881	25.2	303.3	32.5	147.9	79.9E	
JUL 17	12 49 43.4	-5-30-20.5	1.36541	1.54047	11.671	0.7	6.9	0.881	25.0	283.9	32.9	148.9	79.1E	
JUL 19	12 53 41.8	-5-57-32.6	1.37883	1.53791	11.573	0.8	6.8	0.881	24.9	264.4	33.3	149.9	78.3E	
JUL 21	12 57 43.2	-6-24-52.5	1.39214	1.53534	11.476	0.8	6.7	0.882	24.7	245.0	33.7	150.9	77.5E	
JUL 23	13 1 47.6	-6-52-19.0	1.40535	1.53276	11.380	0.8	6.7	0.882	24.5	225.6	34.1	152.0	76.7E	
JUL 25	13 5 55.1	-7-19-51.1	1.41844	1.53017	11.285	0.8	6.6	0.883	24.3	206.1	34.5	153.0	75.9E	
JUL 27	13 10 5.5	-7-47-28.0	1.43141	1.52758	11.188	0.8	6.5	0.883	24.1	186.6	34.9	154.0	75.1E	
JUL 29	13 14 19.1	-8-15-8.7	1.44428	1.52498	11.090	0.8	6.5	0.884	23.9	167.2	35.2	155.1	74.3E	
JUL 31	13 18 35.7	-8-42-52.1	1.45703	1.52238	10.989	0.8	6.4	0.884	23.6	147.7	35.5	156.1	73.6E	
AUG 2	13 22 55.3	-9-10-37.3	1.46967	1.51977	10.885	0.9	6.4	0.885	23.4	128.2	35.9	157.2	72.8E	
AUG 4	13 27 18.0	-9-38-22.9	1.48218	1.51716	10.779	0.9	6.3	0.886	23.1	108.7	36.2	158.2	72.1E	
AUG 6	13 31 43.7	-10-6-7.8	1.49457	1.51455	10.670	0.9	6.3	0.886	22.9	89.2	36.5	159.3	71.4E	
AUG 8	13 36 12.5	-10-33-50.8	1.50683	1.51193	10.560	0.9	6.2	0.887	22.6	69.7	36.8	160.3	70.6E	
AUG 10	13 40 44.2	-11-1-30.7	1.51896	1.50932	10.449	0.9	6.2	0.888	22.3	50.2	37.0	161.4	69.9E	
AUG 12	13 45 19.0	-11-29-6.2	1.53097	1.50670	10.338	0.9	6.1	0.889	22.0	30.7	37.3	162.5	69.2E	
AUG 14	13 49 56.7	-11-56-36.0	1.54285	1.50409	10.227	0.9	6.1	0.890	21.6	11.2	37.5	163.5	68.5E	
AUG 16	13 54 37.4	-12-23-58.9	1.55460	1.50148	10.118	0.9	6.0	0.890	21.3	351.7	37.8	164.6	67.8E	
AUG 18	13 59 21.0	-12-51-13.3	1.56622	1.49887	10.012	0.9	6.0	0.891	21.0	332.2	38.0	165.7	67.2E	
AUG 20	14 4 7.6	-13-18-18.0	1.57773	1.49626	9.909	1.0	5.9	0.892	20.6	312.7	38.1	166.8	66.5E	
AUG 22	14 8 57.2	-13-45-11.7	1.58911	1.49367	9.808	1.0	5.9	0.893	20.2	293.2	38.3	167.9	65.8E	
AUG 24	14 13 49.9	-14-11-53.3	1.60039	1.49107	9.708	1.0	5.9	0.894	19.8	273.6	38.4	168.9	65.1E	
AUG 26	14 18 45.6	-14-38-21.5	1.61154	1.48848	9.608	1.0	5.8	0.895	19.4	254.1	38.6	170.0	64.5E	
AUG 28	14 23 44.4	-15-4-35.1	1.62258	1.48591	9.506	1.0	5.8	0.896	19.0	234.6	38.7	171.1	63.8E	
AUG 30	14 28 46.4	-15-30-32.7	1.63350	1.48334	9.404	1.0	5.7	0.897	18.6	215.1	38.8	172.2	63.2E	
SEP 1	14 33 51.5	-15-56-13.0	1.64431	1.48078	9.300	1.0	5.7	0.898	18.2	195.5	38.8	173.3	62.6E	
SEP 3	14 38 59.7	-16-21-34.5	1.65499	1.47823	9.196	1.0	5.7	0.899	17.7	176.0	38.9	174.4	61.9E	
SEP 5	14 44 11.1	-16-46-35.7	1.66555	1.47569	9.090	1.0	5.6	0.900	17.3	156.5	38.9	175.5	61.3E	
SEP 7	14 49 25.7	-17-11-15.3	1.67599	1.47316	8.985	1.0	5.6	0.901	16.8	137.0	38.9	176.7	60.7E	
SEP 9	14 54 43.4	-17-35-31.7	1.68631	1.47065	8.881	1.0	5.6	0.902	16.3	117.4	38.8	177.8	60.1E	
SEP 11	15 0 4.2	-17-59-23.4	1.69651	1.46816	8.777	1.0	5.5	0.904	15.8	97.9	38.8	178.9	59.5E	
SEP 13	15 5 28.1	-18-22-48.8	1.70659	1.46567	8.677	1.0	5.5	0.905	15.3	78.4	38.7	180.0	58.8E	
SEP 15	15 10 55.1	-18-45-46.4	1.71655	1.46321	8.579	1.1	5.5	0.906	14.8	58.8	38.6	181.2	58.2E	
SEP 17	15 16 25.2	-19-8-14.6	1.72641	1.46076	8.486	1.1	5.4	0.907	14.3	39.3	38.5	182.3	57.7E	
SEP 19	15 21 58.4	-19-30-11.7	1.73616	1.45834	8.396	1.1	5.4	0.908	13.8	19.8	38.4	183.4	57.1E	
SEP 21	15 27 34.6	-19-51-36.5	1.74580	1.45593	8.309	1.1	5.4	0.909	13.3	0.3	38.2	184.6	56.5E	
SEP 23	15 33 14.0	-20-12-27.4	1.75535	1.45354	8.222	1.1	5.3	0.910	12.7	340.7	38.0	185.7	55.9E	
SEP 25	15 38 56.6	-20-32-43.1	1.76480	1.45118	8.136	1.1	5.3	0.911	12.2	321.2	37.8	186.9	55.3E	
SEP 27	15 44 42.2	-20-52-22.0	1.77415	1.44884	8.049	1.1	5.3	0.913	11.6	301.7	37.5	188.0	54.7E	
SEP 29	15 50 30.9	-21-11-22.5	1.78339	1.44652	7.962	1.1	5.3	0.914	11.0	282.1	37.3	189.2	54.2E	
OCT 1	15 56 22.6	-21-29-43.1	1.79254	1.44423	7.874	1.1	5.2	0.915	10.4	262.6	37.0	190.3	53.6E	
OCT 3	16 2 17.4	-21-47-22.4	1.80159	1.44196	7.787	1.1	5.2	0.916	9.8	243.1	36.7	191.5	53.0E	
OCT 5	16 8 15.1	-22-4-18.8	1.81053	1.43972	7.700	1.1	5.2	0.917	9.3	223.5	36.3	192.7	52.5E	
OCT 7	16 14 15.7	-22-20-30.7	1.81937	1.43751	7.614	1.1	5.1	0.918	8.7	204.0	35.9	193.8	51.9E	
OCT 9	16 20 19.2	-22-35-56.9	1.82812	1.43532	7.529	1.1	5.1	0.920	8.0	184.5	35.6	195.0	51.4E	
OCT 11	16 26 25.4	-22-50-35.6	1.83677	1.43317	7.447	1.1	5.1	0.921	7.4	164.9	35.1	196.2	50.8E	
OCT 13	16 32 34.3	-23-4-25.5	1.84533	1.43105	7.369	1.1	5.1	0.922	6.8	145.4	34.7	197.4	50.3E	
OCT 15	16 38 45.8	-23-17-25.0	1.85379	1.42896	7.295	1.1	5.1	0.923	6.2	125.9	34.2	198.5	49.7E	
OCT 17	16 44 59.7	-23-29-32.8	1.86218	1.42690	7.225	1.1	5.0	0.924	5.5	106.3	33.8	199.7	49.2E	
OCT 19	16 51 16.2	-23-40-47.6	1.87049	1.42488	7.159	1.1	5.0	0.926	4.9	86.8	33.2	200.9	48.7E	
OCT 21	16 57 35.0	-23-51-8.2	1.87872	1.42289	7.094	1.1	5.0	0.927	4.3	67.3	32.7	202.1	48.1E	
OCT 23	17 3 56.1	-24-0-33.4	1.88688	1.42094	7.030	1.1	5.0	0.928	3.6	47.7	32.2	203.3	47.6E	
OCT 25	17 10 19.5	-24-9-2.1	1.89496	1.41903	6.966	1.1	4.9	0.929	3.0	28.2	31.6	204.5	47.1E	
OCT 27	17 16 45.0	-24-16-33.1	1.90297	1.41715	6.903	1.1	4.9	0.930	2.3	8.6	31.0	205.7	46.6E	
OCT 29	17 23 12.4	-24-23-5.3	1.91091	1.41531	6.839	1.1	4.9	0.931	1.7	349.1	30.4	206.9	46.0E	
OCT 31	17 29 41.8	-24-28-37.8	1.91877	1.41351	6.776	1.1	4.9	0.933	1.0	329.5	29.7	208.1	45.5E	
NOV 2	17 36 13.0	-24-33-9.6	1.92656	1.41175	6.712	1.1	4.9	0.934	0.3	309.9	29.1	209.4	45.0E	
NOV 4	17 42 45.8	-24-36-40.0	1.93428	1.41004	6.650	1.1	4.8	0.935	-0.3	290.4	28.4	210.6	44.5E	
NOV 6	17 49 20.1	-24-39-8.1	1.94192	1.40836	6.589	1.1	4.8	0.936	-1.0	270.8	27.7	211.8	44.0E	
NOV 8	17 55 55.7	-24-40-33.3	1.94950	1.40673	6.530	1.1	4.8	0.937	-1.7	251.2	27.0	213.0	43.5E	
NOV 10	18 2 32.5	-24-40-54.8	1.95701	1.40515	6.474	1.1	4.8	0.939	-2.3	231.7	26.2	214.2	43.0E	
NOV 12	18 9 10.3	-24-40-12.2	1.96446	1.40360	6.423	1.1	4.8	0.940	-3.0	212.1	25.5	215.5	42.5E	
NOV 14	18 15 49.0	-24-38-24.8	1.97185	1.40211	6.376	1.1	4.8	0.941	-3.7	192.5	24.7	216.7	42.0E	
NOV 16	18 22 28.5	-24-35-32.4	1.97919	1.40066	6.332	1.1	4.7	0.942	-4.3	172.9	23.9	217.9	41.5E	
NOV 18	18 29 8.6	-24-31-34.7	1.98648	1.39926	6.291	1.1	4.7	0.943	-5.0	153.3	23.1	219.2	41.0E	
NOV 20	18 35 49.2	-24-26-31.7	1.99372	1.39790	6.251	1.1	4.7	0.944	-5.7	133.7	22.3	220.4	40.5E	
NOV 22	18 42 30.1	-24-20-23.1	2.00092	1.39660	6.211	1.1	4.7	0.945	-6.3	114.1	21.5	221.7	40.0E	
NOV 24	18 49 11.4	-24-13-9.0	2.00807	1.39534	6.172	1.1	4.7	0.947	-7.0	94.5	20.6	222.9	39.5E	
NOV 26	18 55 52.7	-24-4-49.4	2.01518	1.39413	6.132	1.1	4.6	0.948	-7.6	74.8	19.7	224.1	39.0E	
NOV 28	19 2 34.0	-23-55-24.5	2.02224	1.39298	6.093	1.1	4.6	0.949	-8.3	55.2	18.9	225.4	38.5E	
NOV 30	19 9 15.1	-23-44-54.7	2.02925	1.39188	6.052	1.1	4.6	0.950	-8.9	35.6	18.0	226.6	38.0E	
DEC 2	19 15 56.0	-23-33-20.5	2.03622	1.39083	6.012	1.1	4.6	0.951	-9.6	15.9	17.1	227.9	37.5E	
DEC 4	19 22 36.4	-23-20-42.2	2.04314	1.38983	5.973	1.2	4.6	0.952	-10.2	356.2	16.2	229.1	37.1E	
DEC 6	19 29 16.2	-23-7-0.6	2.05002	1.38888	5.935	1.2	4.6	0.953	-10.9	336.6	15.3	230.4	36.6E	
DEC 8	19 35 55.3	-22-52												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	20 54	12.9	-18-39-22.2	2.13657	1.38163	5.611	1.2	4.4	0.966	-18.4	80.1	2.6	246.8	30.4E
JAN 3	21 0	34.8	-18-12-33.3	2.14304	1.38147	5.586	1.2	4.4	0.967	-18.9	60.3	1.6	248.1	30.0E
JAN 5	21 6	54.9	-17-44-58.1	2.14948	1.38137	5.563	1.2	4.4	0.968	-19.4	40.4	0.6	249.4	29.5E
JAN 7	21 13	13.2	-17-16-38.0	2.15589	1.38133	5.542	1.2	4.3	0.969	-19.8	20.6	359.6	250.6	29.0E
JAN 9	21 19	29.7	-16-47-34.6	2.16228	1.38134	5.524	1.2	4.3	0.970	-20.3	0.8	358.6	251.9	28.6E
JAN 11	21 25	44.4	-16-17-49.5	2.16865	1.38142	5.508	1.2	4.3	0.971	-20.7	340.9	357.6	253.2	28.1E
JAN 13	21 31	57.4	-15-47-24.4	2.17500	1.38155	5.494	1.2	4.3	0.972	-21.2	321.1	356.6	254.4	27.7E
JAN 15	21 38	8.5	-15-16-20.9	2.18134	1.38174	5.481	1.2	4.3	0.973	-21.6	301.2	355.6	255.7	27.2E
JAN 17	21 44	17.9	-14-44-40.6	2.18767	1.38198	5.468	1.2	4.3	0.974	-22.0	281.4	354.6	257.0	26.7E
JAN 19	21 50	25.5	-14-12-25.0	2.19398	1.38229	5.455	1.2	4.3	0.975	-22.4	261.5	353.5	258.3	26.3E
JAN 21	21 56	31.5	-13-39-35.9	2.20027	1.38265	5.440	1.2	4.3	0.975	-22.7	241.6	352.5	259.5	25.8E
JAN 23	22 2	35.8	-13-6-14.7	2.20654	1.38307	5.423	1.2	4.2	0.976	-23.1	221.7	351.5	260.8	25.4E
JAN 25	22 8	38.4	-12-32-23.3	2.21280	1.38355	5.405	1.2	4.2	0.977	-23.4	201.8	350.5	262.1	24.9E
JAN 27	22 14	39.4	-11-58-3.3	2.21903	1.38408	5.384	1.2	4.2	0.978	-23.7	181.9	349.5	263.3	24.5E
JAN 29	22 20	38.9	-11-23-16.5	2.22523	1.38467	5.361	1.2	4.2	0.979	-24.0	161.9	348.6	264.6	24.0E
JAN 31	22 26	36.8	-10-48-4.8	2.23141	1.38531	5.337	1.2	4.2	0.979	-24.3	142.0	347.6	265.8	23.5E
FEB 2	22 32	33.1	-10-12-29.8	2.23756	1.38602	5.313	1.2	4.2	0.980	-24.5	122.1	346.6	267.1	23.1E
FEB 4	22 38	27.9	-9-36-33.2	2.24369	1.38677	5.290	1.2	4.2	0.981	-24.8	102.1	345.6	268.4	22.6E
FEB 6	22 44	21.3	-9-0-16.8	2.24978	1.38758	5.269	1.2	4.2	0.982	-25.0	82.2	344.7	269.6	22.2E
FEB 8	22 50	13.2	-8-23-42.2	2.25586	1.38845	5.250	1.2	4.2	0.982	-25.2	62.2	343.7	270.9	21.7E
FEB 10	22 56	3.8	-7-46-51.1	2.26191	1.38937	5.232	1.2	4.1	0.983	-25.3	42.3	342.8	272.1	21.3E
FEB 12	23 1	53.1	-7-9-45.3	2.26795	1.39034	5.214	1.2	4.1	0.984	-25.5	22.3	341.8	273.4	20.8E
FEB 14	23 7	41.2	-6-32-26.2	2.27396	1.39137	5.195	1.2	4.1	0.984	-25.6	2.4	340.9	274.6	20.4E
FEB 16	23 13	28.1	-5-54-55.4	2.27995	1.39245	5.176	1.2	4.1	0.985	-25.7	342.4	340.0	275.9	19.9E
FEB 18	23 19	14.0	-5-17-14.4	2.28591	1.39358	5.154	1.2	4.1	0.986	-25.8	322.4	339.1	277.1	19.5E
FEB 20	23 24	58.8	-4-39-24.9	2.29185	1.39476	5.130	1.2	4.1	0.986	-25.9	302.5	338.2	278.4	19.0E
FEB 22	23 30	42.7	-4-1-28.3	2.29776	1.39599	5.104	1.2	4.1	0.987	-25.9	282.5	337.4	279.6	18.6E
FEB 24	23 36	25.8	-3-23-26.3	2.30364	1.39727	5.074	1.2	4.1	0.988	-25.9	262.5	336.5	280.9	18.1E
FEB 26	23 42	8.0	-2-45-20.5	2.30948	1.39860	5.040	1.2	4.1	0.988	-25.9	242.6	335.7	282.1	17.6E
FEB 28	23 47	49.5	-2-7-12.5	2.31529	1.39998	5.004	1.2	4.0	0.989	-25.9	222.6	334.9	283.4	17.2E
MAR 2	23 53	30.3	-1-29-3.9	2.32104	1.40141	4.967	1.2	4.0	0.990	-25.9	202.7	334.1	284.6	16.7E
MAR 4	23 59	10.4	0-50-56.1	2.32676	1.40288	4.930	1.2	4.0	0.990	-25.8	182.7	333.3	285.8	16.3E
MAR 6	0	4 49.9	0-12-50.9	2.33243	1.40440	4.893	1.2	4.0	0.991	-25.8	162.8	332.5	287.1	15.8E
MAR 8	0 10	28.9	0 25 10.3	2.33806	1.40597	4.857	1.2	4.0	0.991	-25.7	142.8	331.8	288.3	15.4E
MAR 10	0 16	7.4	1 3 6.1	2.34365	1.40758	4.822	1.2	4.0	0.992	-25.5	122.9	331.1	289.5	14.9E
MAR 12	0 21	45.5	1 40 54.8	2.34920	1.40923	4.786	1.2	4.0	0.992	-25.4	103.0	330.4	290.7	14.5E
MAR 14	0 27	23.3	2 18 35.2	2.35471	1.41092	4.749	1.2	4.0	0.993	-25.2	83.0	329.7	291.9	14.0E
MAR 16	0 33	0.8	2 56 6.0	2.36017	1.41266	4.711	1.2	4.0	0.993	-25.1	63.1	329.0	293.2	13.6E
MAR 18	0 38	38.2	3 33 25.8	2.36559	1.41444	4.670	1.2	4.0	0.994	-24.9	43.2	328.4	294.4	13.1E
MAR 20	0 44	15.4	4 10 33.3	2.37096	1.41626	4.627	1.3	4.0	0.994	-24.6	23.3	327.8	295.6	12.6E
MAR 22	0 49	52.7	4 47 27.1	2.37628	1.41812	4.581	1.3	3.9	0.994	-24.4	3.4	327.2	296.8	12.2E
MAR 24	0 55	29.9	5 24 6.0	2.38154	1.42001	4.530	1.3	3.9	0.995	-24.2	343.5	326.7	298.0	11.7E
MAR 26	1 1	7.3	6 0 28.6	2.38674	1.42195	4.475	1.3	3.9	0.995	-23.9	323.7	326.1	299.2	11.3E
MAR 28	1 6	44.8	6 36 33.4	2.39188	1.42392	4.416	1.3	3.9	0.996	-23.6	303.8	325.6	300.4	10.8E
MAR 30	1 12	22.4	7 12 19.2	2.39695	1.42592	4.355	1.3	3.9	0.996	-23.3	284.0	325.2	301.6	10.3E
APR 1	1 18	0.3	7 47 44.7	2.40194	1.42796	4.292	1.3	3.9	0.996	-23.0	264.1	324.7	302.8	9.9E
APR 3	1 23	38.5	8 22 48.6	2.40686	1.43004	4.229	1.3	3.9	0.997	-22.7	244.3	324.3	304.0	9.4E
APR 5	1 29	16.9	8 57 29.4	2.41171	1.43214	4.167	1.3	3.9	0.997	-22.3	224.5	323.9	305.1	9.0E
APR 7	1 34	55.7	9 31 46.0	2.41649	1.43428	4.104	1.3	3.9	0.997	-21.9	204.7	323.5	306.3	8.5E
APR 9	1 40	34.9	10 5 37.1	2.42119	1.43645	4.041	1.3	3.9	0.998	-21.6	184.9	323.2	307.5	8.0E
APR 11	1 46	14.5	10 39 1.6	2.42582	1.43865	3.977	1.3	3.9	0.998	-21.2	165.1	322.9	308.7	7.6E
APR 13	1 51	54.7	11 11 58.4	2.43038	1.44087	3.910	1.3	3.9	0.998	-20.8	145.3	322.6	309.8	7.1E
APR 15	1 57	35.4	11 44 26.4	2.43486	1.44313	3.842	1.3	3.8	0.998	-20.3	125.6	322.3	311.0	6.6E
APR 17	2 3	16.6	12 16 24.5	2.43925	1.44541	3.771	1.3	3.8	0.999	-19.9	105.9	322.1	312.2	6.2E
APR 19	2 8	58.6	12 47 51.7	2.44357	1.44771	3.696	1.3	3.8	0.999	-19.5	86.1	321.9	313.3	5.7E
APR 21	2 14	41.2	13 18 46.9	2.44779	1.45004	3.616	1.3	3.8	0.999	-19.0	66.4	321.7	314.5	5.2E
APR 23	2 20	24.5	13 49 9.0	2.45192	1.45239	3.533	1.3	3.8	0.999	-18.5	46.7	321.6	315.6	4.8E
APR 25	2 26	8.5	14 18 56.9	2.45595	1.45477	3.444	1.3	3.8	0.999	-18.1	27.0	321.5	316.8	4.3E
APR 27	2 31	53.3	14 48 9.6	2.45987	1.45717	3.352	1.3	3.8	0.999	-17.6	7.3	321.4	317.9	3.8E
APR 29	2 37	38.8	15 16 46.0	2.46369	1.45958	3.258	1.3	3.8	1.000	-17.1	347.6	321.3	319.1	3.3E
MAY 1	2 43	25.0	15 44 45.2	2.46740	1.46202	3.163	1.3	3.8	1.000	-16.6	328.0	321.3	320.2	2.9E
MAY 3	2 49	12.0	16 12 6.0	2.47100	1.46448	3.067	1.3	3.8	1.000	-16.1	308.3	321.3	321.3	2.4E
MAY 5	2 54	59.7	16 38 47.5	2.47449	1.46695	2.972	1.3	3.8	1.000	-15.6	288.7	321.3	322.5	1.9E
MAY 7	3 0	48.1	17 4 48.7	2.47786	1.46944	2.875	1.3	3.8	1.000	-15.0	269.1	321.4	323.6	1.4E
MAY 9	3 6	37.3	17 30 8.8	2.48113	1.47194	2.778	1.3	3.8	1.000	-14.5	249.4	321.5	324.7	0.9E
MAY 11	3 12	27.3	17 54 47.0	2.48428	1.47446	2.679	1.3	3.8	1.000	-13.9	229.8	321.6	325.8	0.4E
MAY 13	3 18	18.0	18 18 42.5	2.48732	1.47699	2.578	1.3	3.8	1.000	-13.4	210.2	321.7	326.9	0.1W
MAY 15	3 24	9.5	18 41 54.6	2.49024	1.47953	2.474	1.3	3.8	1.000	-12.8	190.6	321.8	328.0	0.5W
MAY 17	3 30	1.7	19 4 22.6	2.49303	1.48209	2.367	1.3	3.8	1.000	-12.3	171.1	322.0	329.1	1.0W
MAY 19	3 35	54.7	19 26 5.7	2.49570	1.48465	2.255	1.3	3.8	1.000	-11.7	151.5	322.2	330.2	1.5W
MAY 21	3 41	48.3	19 47 3.2	2.49824	1.48722	2.139	1.4	3.7	1.000	-11.1	131.9	322.5	331.3	2.0W
MAY 23	3 47	42.7	20 7 14.4	2.50064	1.48981	2.017	1.4	3.7	1.000	-10.6	112.4	322.7	332.4	2.5W
MAY 25	3 53	37.8	20 26 38.7	2.50290	1.49240	1.892	1.4	3.7	1.000	-10.0	92.8	323.0	333.5	3.0W
MAY 27	3 59	33.5	20 45 15.5	2.50501	1.49499	1.764	1.4	3.7	1.000	-9.4	73.3	323.3	334.6	3.5W
MAY 29	4 5	29.7	21 3 4.3	2.50697	1.49759	1.634	1.4	3.7	0.999	-8.8	53.8	323.6	335.7	4.0W
MAY 31	4 11	26.4	21 20 4.4	2.50879	1.50020	1.505	1.4	3.7	0.999	-8.2	34.3	324.0	336.8	4.5W
JUN 2	4 17	23.6	21 36 15.2	2.51045	1.50281	1.374	1.4	3.7	0.999	-7.6	14.7	324.3	337.8	5.0W
JUN 4	4 23	21.2	21 51 36.3	2.51196	1.50542	1.243	1.4	3.7	0.999	-7.0	355.2	324.7	338.9	5.5W
JUN 6	4 29	19.1	22 6 7.3	2.51332										

1998 MARS

Geocentric Planetary Ephemeris

1998 MARS

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	5 47 0.4	23 57 13.5	2.51592	1.54176	-0.849	1.6	3.7	0.995	1.4	82.7	332.1	353.5	12.9W	
JUL 4	5 52 57.1	23 59 45.8	2.51485	1.54431	-1.013	1.6	3.7	0.994	2.0	63.3	332.7	354.5	13.5W	
JUL 6	5 58 53.2	24 1 27.2	2.51358	1.54684	-1.178	1.6	3.7	0.994	2.5	43.9	333.3	355.6	14.0W	
JUL 8	6 4 48.6	24 2 18.0	2.51212	1.54937	-1.343	1.6	3.7	0.993	3.1	24.4	334.0	356.6	14.6W	
JUL 10	6 10 43.2	24 2 18.4	2.51048	1.55188	-1.510	1.6	3.7	0.993	3.7	5.0	334.7	357.6	15.1W	
JUL 12	6 16 37.0	24 1 29.0	2.50863	1.55438	-1.680	1.6	3.7	0.992	4.3	345.6	335.4	358.6	15.7W	
JUL 14	6 22 29.9	23 59 50.1	2.50659	1.55686	-1.853	1.6	3.7	0.992	4.9	326.1	336.1	359.6	16.2W	
JUL 16	6 28 21.9	23 57 22.0	2.50435	1.55933	-2.031	1.6	3.7	0.991	5.4	306.7	336.8	0.6	16.8W	
JUL 18	6 34 12.9	23 54 5.3	2.50190	1.56178	-2.213	1.6	3.7	0.990	6.0	287.3	337.5	1.6	17.4W	
JUL 20	6 40 2.8	23 50 0.5	2.49924	1.56422	-2.399	1.6	3.7	0.990	6.6	267.9	338.2	2.6	18.0W	
JUL 22	6 45 51.7	23 45 8.2	2.49636	1.56664	-2.588	1.6	3.8	0.989	7.1	248.4	338.9	3.6	18.5W	
JUL 24	6 51 39.2	23 39 29.2	2.49326	1.56905	-2.778	1.6	3.8	0.989	7.7	229.0	339.7	4.5	19.1W	
JUL 26	6 57 25.5	23 33 3.8	2.48994	1.57143	-2.969	1.6	3.8	0.988	8.3	209.6	340.4	5.5	19.7W	
JUL 28	7 3 10.4	23 25 52.9	2.48640	1.57380	-3.160	1.6	3.8	0.987	8.8	190.1	341.2	6.5	20.3W	
JUL 30	7 8 53.9	23 17 56.9	2.48264	1.57615	-3.351	1.7	3.8	0.987	9.3	170.7	341.9	7.5	20.9W	
AUG 1	7 14 36.0	23 9 16.6	2.47866	1.57847	-3.542	1.7	3.8	0.986	9.9	151.3	342.7	8.5	21.5W	
AUG 3	7 20 16.5	22 59 52.8	2.47446	1.58078	-3.733	1.7	3.8	0.985	10.4	131.9	343.5	9.4	22.1W	
AUG 5	7 25 55.5	22 49 46.2	2.47004	1.58307	-3.924	1.7	3.8	0.985	10.9	112.4	344.3	10.4	22.7W	
AUG 7	7 31 32.9	22 38 57.7	2.46539	1.58533	-4.115	1.7	3.8	0.984	11.4	93.0	345.0	11.4	23.3W	
AUG 9	7 37 8.7	22 27 27.9	2.46053	1.58758	-4.309	1.7	3.8	0.983	12.0	73.6	345.8	12.3	23.9W	
AUG 11	7 42 42.9	22 15 17.8	2.45544	1.58980	-4.505	1.7	3.8	0.982	12.5	54.1	346.6	13.3	24.5W	
AUG 13	7 48 15.5	22 2 28.0	2.45012	1.59199	-4.704	1.7	3.8	0.981	13.0	34.7	347.4	14.2	25.1W	
AUG 15	7 53 46.4	21 48 59.3	2.44457	1.59416	-4.908	1.7	3.8	0.981	13.4	15.2	348.2	15.2	25.7W	
AUG 17	7 59 15.6	21 34 52.8	2.43878	1.59631	-5.115	1.7	3.8	0.980	13.9	355.8	349.0	16.1	26.4W	
AUG 19	8 4 43.0	21 20 9.3	2.43276	1.59843	-5.324	1.7	3.9	0.979	14.4	336.4	349.8	17.1	27.0W	
AUG 21	8 10 8.8	21 4 49.8	2.42648	1.60053	-5.535	1.7	3.9	0.978	14.9	316.9	350.6	18.0	27.6W	
AUG 23	8 15 32.7	20 48 55.2	2.41997	1.60260	-5.746	1.7	3.9	0.977	15.3	297.5	351.4	19.0	28.3W	
AUG 25	8 20 54.7	20 32 26.4	2.41321	1.60465	-5.956	1.7	3.9	0.976	15.8	278.0	352.2	19.9	28.9W	
AUG 27	8 26 15.0	20 15 24.3	2.40621	1.60666	-6.166	1.7	3.9	0.975	16.2	258.6	353.0	20.9	29.6W	
AUG 29	8 31 33.4	19 57 49.8	2.39897	1.60865	-6.375	1.7	3.9	0.974	16.7	239.1	353.9	21.8	30.2W	
AUG 31	8 36 49.9	19 39 43.9	2.39148	1.61061	-6.583	1.7	3.9	0.973	17.1	219.6	354.7	22.7	30.9W	
SEP 2	8 42 4.6	19 21 7.5	2.38376	1.61255	-6.791	1.7	3.9	0.972	17.5	200.2	355.5	23.7	31.5W	
SEP 4	8 47 17.4	19 2 1.6	2.37580	1.61445	-6.997	1.7	3.9	0.971	17.9	180.7	356.3	24.6	32.2W	
SEP 6	8 52 28.4	18 42 27.0	2.36759	1.61633	-7.204	1.7	4.0	0.970	18.3	161.2	357.1	25.5	32.9W	
SEP 8	8 57 37.6	18 22 24.7	2.35915	1.61817	-7.412	1.7	4.0	0.969	18.7	141.8	357.9	26.5	33.5W	
SEP 10	9 2 45.0	18 1 55.5	2.35047	1.61999	-7.624	1.7	4.0	0.968	19.1	122.3	358.7	27.4	34.2W	
SEP 12	9 7 50.6	17 41 0.3	2.34154	1.62177	-7.838	1.7	4.0	0.967	19.4	102.8	359.5	28.3	34.9W	
SEP 14	9 12 54.4	17 19 40.1	2.33236	1.62353	-8.055	1.7	4.0	0.966	19.8	83.3	0.3	29.2	35.6W	
SEP 16	9 17 56.5	16 57 56.0	2.32293	1.62525	-8.273	1.7	4.0	0.965	20.1	63.9	1.2	30.1	36.3W	
SEP 18	9 22 56.8	16 35 48.9	2.31325	1.62694	-8.493	1.7	4.0	0.964	20.5	44.4	2.0	31.1	37.0W	
SEP 20	9 27 55.3	16 13 19.8	2.30331	1.62860	-8.711	1.7	4.1	0.963	20.8	24.9	2.8	32.0	37.7W	
SEP 22	9 32 52.1	15 50 29.6	2.29313	1.63023	-8.929	1.7	4.1	0.962	21.1	5.4	3.6	32.9	38.4W	
SEP 24	9 37 47.1	15 27 19.4	2.28269	1.63182	-9.145	1.7	4.1	0.961	21.4	345.9	4.4	33.8	39.1W	
SEP 26	9 42 40.3	15 3 49.9	2.27200	1.63338	-9.359	1.7	4.1	0.960	21.7	326.4	5.2	34.7	39.8W	
SEP 28	9 47 31.8	14 40 2.2	2.26107	1.63491	-9.572	1.7	4.1	0.959	22.0	306.9	6.0	35.6	40.5W	
SEP 30	9 52 21.7	14 15 57.3	2.24989	1.63640	-9.782	1.7	4.2	0.957	22.3	287.4	6.8	36.5	41.3W	
OCT 2	9 57 9.8	13 51 36.0	2.23847	1.63786	-9.989	1.7	4.2	0.956	22.5	267.9	7.6	37.4	42.0W	
OCT 4	10 1 56.2	13 26 59.2	2.22681	1.63929	-10.196	1.7	4.2	0.955	22.8	248.4	8.3	38.3	42.7W	
OCT 6	10 6 41.1	13 2 7.8	2.21492	1.64068	-10.403	1.7	4.2	0.954	23.0	228.9	9.1	39.2	43.5W	
OCT 8	10 11 24.4	12 37 2.4	2.20278	1.64204	-10.610	1.7	4.3	0.953	23.2	209.4	9.9	40.1	44.2W	
OCT 10	10 16 6.1	12 11 43.9	2.19040	1.64336	-10.820	1.7	4.3	0.952	23.4	189.9	10.7	41.0	45.0W	
OCT 12	10 20 46.4	11 46 13.4	2.17778	1.64464	-11.032	1.7	4.3	0.950	23.6	170.4	11.4	41.9	45.7W	
OCT 14	10 25 25.2	11 20 31.7	2.16492	1.64589	-11.244	1.7	4.3	0.949	23.8	150.9	12.2	42.8	46.5W	
OCT 16	10 30 2.4	10 54 39.8	2.15181	1.64710	-11.455	1.7	4.4	0.948	24.0	131.4	12.9	43.7	47.3W	
OCT 18	10 34 38.2	10 28 38.7	2.13846	1.64828	-11.665	1.6	4.4	0.947	24.1	111.9	13.7	44.6	48.0W	
OCT 20	10 39 12.4	10 2 29.1	2.12486	1.64942	-11.873	1.6	4.4	0.945	24.3	92.4	14.4	45.5	48.8W	
OCT 22	10 43 45.3	9 36 12.1	2.11103	1.65053	-12.078	1.6	4.4	0.944	24.4	72.9	15.2	46.4	49.6W	
OCT 24	10 48 16.6	9 9 48.5	2.09696	1.65159	-12.280	1.6	4.5	0.943	24.6	53.4	15.9	47.3	50.4W	
OCT 26	10 52 46.6	8 43 19.2	2.08266	1.65262	-12.478	1.6	4.5	0.942	24.7	33.9	16.6	48.2	51.2W	
OCT 28	10 57 15.1	8 16 45.1	2.06814	1.65362	-12.673	1.6	4.5	0.940	24.8	14.4	17.3	49.0	52.0W	
OCT 30	11 1 42.2	7 50 7.0	2.05339	1.65457	-12.864	1.6	4.6	0.939	24.9	354.9	18.0	49.9	52.8W	
NOV 1	11 6 8.0	7 23 25.8	2.03842	1.65549	-13.052	1.6	4.6	0.938	24.9	335.5	18.7	50.8	53.6W	
NOV 3	11 10 32.4	6 56 42.2	2.02324	1.65637	-13.237	1.6	4.6	0.937	25.0	316.0	19.4	51.7	54.4W	
NOV 5	11 14 55.5	6 29 56.7	2.00784	1.65721	-13.423	1.6	4.7	0.935	25.0	296.5	20.1	52.6	55.3W	
NOV 7	11 19 17.4	6 3 10.3	1.99223	1.65802	-13.608	1.6	4.7	0.934	25.1	277.0	20.8	53.5	56.1W	
NOV 9	11 23 38.1	5 36 23.7	1.97640	1.65878	-13.794	1.5	4.7	0.933	25.1	257.5	21.4	54.3	56.9W	
NOV 11	11 27 57.5	5 9 37.8	1.96036	1.65951	-13.979	1.5	4.8	0.932	25.1	238.1	22.1	55.2	57.8W	
NOV 13	11 32 15.6	4 42 53.6	1.94411	1.66020	-14.162	1.5	4.8	0.930	25.1	218.6	22.7	56.1	58.6W	
NOV 15	11 36 32.5	4 16 11.9	1.92765	1.66085	-14.343	1.5	4.9	0.929	25.1	199.1	23.3	57.0	59.5W	
NOV 17	11 40 48.1	3 49 33.5	1.91098	1.66146	-14.519	1.5	4.9	0.928	25.1	179.7	23.9	57.9	60.4W	
NOV 19	11 45 2.5	3 22 59.3	1.89411	1.66203	-14.692	1.5	4.9	0.927	25.1	160.2	24.5	58.7	61.2W	
NOV 21	11 49 15.6	2 56 30.1	1.87704	1.66256	-14.860	1.5	5.0	0.925	25.0	140.8	25.1	59.6	62.1W	
NOV 23	11 53 27.4	2 30 6.8	1.85978	1.66305	-15.022	1.4	5.0	0.924	25.0	121.4	25.7	60.5	63.0W	
NOV 25	11 57 37.9	2 3 50.2	1.84234	1.66351	-15.179	1.4	5.1	0.923	24.9	101.9	26.3	61.4	63.9W	
NOV 27	12 1 47.1	1 37 41.2	1.82471	1.66392	-15.331	1.4	5.1	0.922	24.8	82.5	26.8	62.2	64.8W	
NOV 29	12 5 55.0	1 11 40.4	1.80692	1.66430	-15.477	1.4	5.2	0.921	24.8	63.1	27.4	63.1	65.7W	
DEC 1	12 10 1.7	0 45 48.5	1.78896	1.66464	-15.620	1.4	5.2	0.920	24.7	43.7	27.9	64.0	66.6W	
DEC 3	12 14 7.1	0 20 6.1	1.77084	1.66493	-15.759	1.4	5.3	0.919	24.6	24.3	28.4	64.9	67.5W	
DEC 5	12 18 11.2	0 -5-26.2	1.75256	1.66519	-15.897	1.3	5.3	0.917	24.4	4.9	28.9	65.7	68.4W	
DEC 7	12 22 14.1	0 -30-47.6	1.73411	1.66541	-16.034	1.3	5.4	0.916	24.3	345.6	29.4	66.6	69.4W	
DEC 9	12 26 15.6	0 -55-57.2	1.71552	1.66558	-16.168	1.3	5.5	0.915	24.2	326.2	29.9	67.5		

Date (0 DT)	RA (h m s)	Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	13 12 34.3	-5-37-47.4	1.48222	1.66461	-17.340	1.0	6.3	0.905	22.0	94.7	34.5	78.0	82.3W
JAN 4	13 16 14.3	-5-59-14.7	1.46215	1.66428	-17.401	1.0	6.4	0.905	21.8	75.5	34.8	78.8	83.3W
JAN 6	13 19 52.2	-6-20-20.2	1.44202	1.66390	-17.458	1.0	6.5	0.904	21.5	56.3	35.0	79.7	84.4W
JAN 8	13 23 27.9	-6-41 -3.1	1.42182	1.66348	-17.509	0.9	6.6	0.904	21.3	37.2	35.3	80.6	85.5W
JAN 10	13 27 1.2	-7 -1-22.8	1.40157	1.66302	-17.555	0.9	6.7	0.904	21.1	18.0	35.6	81.5	86.5W
JAN 12	13 30 32.2	-7-21-18.6	1.38127	1.66253	-17.593	0.9	6.8	0.903	20.8	358.9	35.8	82.3	87.7W
JAN 14	13 34 0.5	-7-40-49.7	1.36093	1.66199	-17.623	0.8	6.9	0.903	20.6	339.7	36.0	83.2	88.8W
JAN 16	13 37 26.1	-7-59-55.3	1.34056	1.66142	-17.645	0.8	7.0	0.903	20.3	320.6	36.2	84.1	89.9W
JAN 18	13 40 48.8	-8-18-34.8	1.32017	1.66080	-17.657	0.8	7.1	0.903	20.1	301.5	36.4	85.0	91.0W
JAN 20	13 44 8.4	-8-36-47.4	1.29977	1.66015	-17.659	0.7	7.2	0.903	19.8	282.5	36.6	85.9	92.2W
JAN 22	13 47 24.9	-8-54-32.5	1.27938	1.65946	-17.651	0.7	7.3	0.903	19.6	263.4	36.8	86.7	93.4W
JAN 24	13 50 37.9	-9-11-49.5	1.25900	1.65873	-17.633	0.7	7.4	0.903	19.4	244.4	36.9	87.6	94.6W
JAN 26	13 53 47.5	-9-28-37.9	1.23865	1.65796	-17.607	0.6	7.6	0.903	19.1	225.4	37.1	88.5	95.8W
JAN 28	13 56 53.5	-9-44-57.5	1.21833	1.65716	-17.572	0.6	7.7	0.904	18.9	206.4	37.2	89.4	97.0W
JAN 30	13 59 55.7	-10 -0-47.7	1.19806	1.65631	-17.531	0.5	7.8	0.904	18.6	187.4	37.3	90.3	98.2W
FEB 1	14 2 53.8	-10-16 -8.1	1.17783	1.65543	-17.483	0.5	8.0	0.905	18.4	168.5	37.5	91.1	99.5W
FEB 3	14 5 47.8	-10-30-57.9	1.15767	1.65451	-17.428	0.5	8.1	0.905	18.1	149.5	37.6	92.0	100.8W
FEB 5	14 8 37.2	-10-45-16.6	1.13757	1.65355	-17.365	0.4	8.2	0.906	17.9	130.6	37.7	92.9	102.0W
FEB 7	14 11 21.9	-10-59 -3.5	1.11756	1.65256	-17.292	0.4	8.4	0.907	17.7	111.7	37.7	93.8	103.4W
FEB 9	14 14 1.7	-11-12-17.9	1.09763	1.65153	-17.209	0.3	8.5	0.908	17.5	92.9	37.8	94.7	104.7W
FEB 11	14 16 36.2	-11-24-59.3	1.07780	1.65046	-17.115	0.3	8.7	0.909	17.2	74.0	37.9	95.6	106.1W
FEB 13	14 19 5.0	-11-37 -6.8	1.05809	1.64935	-17.008	0.2	8.9	0.910	17.0	55.2	38.0	96.5	107.4W
FEB 15	14 21 28.0	-11-48-39.8	1.03852	1.64821	-16.887	0.2	9.0	0.912	16.8	36.5	38.0	97.4	108.8W
FEB 17	14 23 44.7	-11-59-37.5	1.01909	1.64703	-16.752	0.2	9.2	0.913	16.6	17.7	38.1	98.3	110.3W
FEB 19	14 25 54.9	-12 -9-59.3	0.99982	1.64581	-16.602	0.1	9.4	0.915	16.4	359.0	38.1	99.1	111.7W
FEB 21	14 27 58.3	-12-19-44.7	0.98074	1.64456	-16.438	0.1	9.6	0.917	16.2	340.3	38.1	100.0	113.2W
FEB 23	14 29 54.5	-12-28-53.3	0.96185	1.64328	-16.259	0.0	9.7	0.919	16.1	321.6	38.2	100.9	114.7W
FEB 25	14 31 43.3	-12-37-24.7	0.94318	1.64195	-16.068	0.0	9.9	0.921	15.9	303.0	38.2	101.8	116.3W
FEB 27	14 33 24.3	-12-45-18.6	0.92474	1.64060	-15.865	-0.1	10.1	0.923	15.8	284.4	38.2	102.7	117.9W
MAR 1	14 34 57.3	-12-52-34.2	0.90653	1.63920	-15.649	-0.2	10.3	0.925	15.6	265.8	38.2	103.6	119.5W
MAR 3	14 36 21.7	-12-59-11.0	0.88859	1.63778	-15.420	-0.2	10.5	0.928	15.5	247.3	38.3	104.5	121.1W
MAR 5	14 37 37.3	-13 -5 -8.2	0.87092	1.63631	-15.176	-0.3	10.8	0.930	15.4	228.8	38.3	105.4	122.8W
MAR 7	14 38 43.6	-13-10-25.1	0.85353	1.63482	-14.916	-0.3	11.0	0.933	15.3	210.3	38.3	106.4	124.5W
MAR 9	14 39 40.3	-13-15 -0.8	0.83646	1.63329	-14.639	-0.4	11.2	0.936	15.2	191.9	38.3	107.3	126.3W
MAR 11	14 40 26.8	-13-18-54.6	0.81972	1.63173	-14.343	-0.4	11.4	0.939	15.1	173.6	38.3	108.2	128.1W
MAR 13	14 41 2.9	-13-22 -5.6	0.80333	1.63013	-14.027	-0.5	11.7	0.942	15.1	155.2	38.3	109.1	129.9W
MAR 15	14 41 28.0	-13-24-32.8	0.78732	1.62851	-13.689	-0.5	11.9	0.945	15.1	136.9	38.3	110.0	131.8W
MAR 17	14 41 41.9	-13-26-15.5	0.77172	1.62685	-13.329	-0.6	12.1	0.949	15.0	118.7	38.3	110.9	133.7W
MAR 19	14 41 44.3	-13-27-13.0	0.75654	1.62515	-12.945	-0.7	12.4	0.952	15.0	100.5	38.3	111.8	135.7W
MAR 21	14 41 34.9	-13-27-24.8	0.74182	1.62343	-12.539	-0.7	12.6	0.955	15.1	82.3	38.3	112.7	137.7W
MAR 23	14 41 13.5	-13-26-50.8	0.72758	1.62167	-12.111	-0.8	12.9	0.959	15.1	64.2	38.3	113.7	139.8W
MAR 25	14 40 40.1	-13-25-30.9	0.71385	1.61989	-11.663	-0.8	13.1	0.963	15.2	46.1	38.3	114.6	141.9W
MAR 27	14 39 54.6	-13-23-24.9	0.70064	1.61807	-11.195	-0.9	13.4	0.966	15.3	28.1	38.3	115.5	144.1W
MAR 29	14 38 56.9	-13-20-32.9	0.68799	1.61623	-10.707	-1.0	13.6	0.970	15.4	10.2	38.3	116.4	146.3W
MAR 31	14 37 47.0	-13-16-54.9	0.67591	1.61435	-10.200	-1.0	13.9	0.973	15.5	352.2	38.3	117.4	148.5W
APR 2	14 36 25.1	-13-12-31.1	0.66443	1.61245	-9.671	-1.1	14.1	0.977	15.7	334.4	38.3	118.3	150.9W
APR 4	14 34 51.2	-13 -7-22.0	0.65358	1.61051	-9.122	-1.1	14.3	0.980	15.8	316.5	38.3	119.2	153.2W
APR 6	14 33 5.7	-13 -1-28.5	0.64337	1.60855	-8.551	-1.2	14.6	0.983	16.0	298.7	38.3	120.2	155.6W
APR 8	14 31 8.9	-12-54-51.6	0.63383	1.60656	-7.958	-1.3	14.8	0.986	16.2	281.0	38.2	121.1	158.1W
APR 10	14 29 1.4	-12-47-32.9	0.62499	1.60454	-7.345	-1.3	15.0	0.989	16.4	263.3	38.2	122.0	160.5W
APR 12	14 26 43.7	-12-39-34.4	0.61687	1.60250	-6.712	-1.4	15.2	0.992	16.7	245.7	38.2	123.0	163.1W
APR 14	14 24 16.7	-12-30-58.8	0.60949	1.60043	-6.059	-1.4	15.4	0.994	16.9	228.0	38.2	123.9	165.6W
APR 16	14 21 41.4	-12-21-49.4	0.60287	1.59833	-5.391	-1.5	15.5	0.996	17.2	210.5	38.1	124.9	168.2W
APR 18	14 18 58.7	-12-12-10.6	0.59704	1.59621	-4.710	-1.5	15.7	0.997	17.5	192.9	38.1	125.8	170.8W
APR 20	14 16 10.1	-12 -2 -7.2	0.59199	1.59406	-4.020	-1.6	15.8	0.999	17.8	175.4	38.0	126.8	173.5W
APR 22	14 13 16.8	-11-51-44.7	0.58775	1.59189	-3.328	-1.6	15.9	1.000	18.1	157.9	37.9	127.7	176.0W
APR 24	14 10 20.1	-11-41 -8.6	0.58431	1.58969	-2.634	-1.7	16.0	1.000	18.4	140.4	37.9	128.7	178.3W
APR 26	14 7 21.4	-11-30-24.9	0.58166	1.58747	-1.944	-1.7	16.1	1.000	18.7	122.9	37.8	129.7	177.9W
APR 28	14 4 22.0	-11-19-39.6	0.57981	1.58523	-1.258	-1.7	16.2	0.999	19.0	105.4	37.7	130.6	175.4E
APR 30	14 1 23.4	-11 -8-59.0	0.57875	1.58297	-0.579	-1.6	16.2	0.998	19.3	87.9	37.6	131.6	172.8E
MAY 2	13 58 27.0	-10-58-29.2	0.57847	1.58068	0.091	-1.6	16.2	0.997	19.6	70.4	37.5	132.5	170.2E
MAY 4	13 55 33.9	-10-48-16.6	0.57896	1.57837	0.750	-1.6	16.2	0.995	19.9	52.9	37.4	133.5	167.5E
MAY 6	13 52 45.5	-10-38-27.3	0.58020	1.57605	1.396	-1.6	16.1	0.993	20.2	35.4	37.3	134.5	164.9E
MAY 8	13 50 3.0	-10-29 -7.1	0.58217	1.57370	2.027	-1.5	16.1	0.990	20.5	17.8	37.2	135.5	162.3E
MAY 10	13 47 27.5	-10-20-21.8	0.58487	1.57133	2.640	-1.5	16.0	0.987	20.7	0.2	37.1	136.4	159.7E
MAY 12	13 45 0.2	-10-12-16.7	0.58826	1.56895	3.235	-1.5	15.9	0.984	21.0	342.6	37.0	137.4	157.2E
MAY 14	13 42 41.9	-10 -4-56.9	0.59233	1.56655	3.807	-1.4	15.8	0.981	21.2	325.0	36.9	138.4	154.7E
MAY 16	13 40 33.7	-9-58-27.5	0.59705	1.56413	4.356	-1.4	15.7	0.977	21.5	307.2	36.8	139.4	152.2E
MAY 18	13 38 36.2	-9-52-52.5	0.60238	1.56169	4.876	-1.3	15.6	0.973	21.7	289.5	36.7	140.4	149.8E
MAY 20	13 36 50.2	-9-48-15.5	0.60830	1.55924	5.367	-1.3	15.4	0.969	21.9	271.7	36.6	141.4	147.4E
MAY 22	13 35 16.0	-9-44-39.0	0.61477	1.55677	5.828	-1.3	15.2	0.964	22.1	253.8	36.5	142.4	145.1E
MAY 24	13 33 54.0	-9-42 -4.9	0.62175	1.55429	6.261	-1.2	15.1	0.960	22.2	235.9	36.5	143.4	142.9E
MAY 26	13 32 44.3	-9-40-34.3	0.62922	1.55179	6.665	-1.2	14.9	0.955	22.4	218.0	36.4	144.4	140.7E
MAY 28	13 31 47.1	-9-40 -7.9	0.63714	1.54928	7.044	-1.1	14.7	0.951	22.5	199.9	36.4	145.4	138.5E
MAY 30	13 31 2.3	-9-40-45.8	0.64548	1.54676	7.397	-1.1	14.5	0.946	22.6	181.9	36.4	146.4	136.5E
JUN 1	13 30 30.0	-9-42-27.7	0.65422	1.54423	7.727	-1.1	14.3	0.942	22.7	163.7	36.3	147.4	134.4E
JUN 3	13 30 10.0	-9-45-12.9	0.66332	1.54169	8.034	-1.0	14.1	0.937	22.8	145.5	36.3	148.4	132.5E
JUN 5	13 30 2.1	-9-49 -0.4	0.67277	1.53913	8.320	-1.0	13.9	0.933	22.9	127.3	36.4	149.5	130.5E
JUN 7	13 30 6.3	-9-53-49.2	0.68253	1.53657	8.586	-0.9	13.7	0.928	22.9	109.0	36.4	150.5	128.7E
JUN 9	13 30 22.2	-9-59-37.8	0.69259	1.53									

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	13 45	4.5	-12 -1-22.3	0.81643	1.50538	10.341	-0.4	11.5	0.886	22.4	245.6	37.4	163.1	109.9E
JUL 3	13 47	20.8	-12-16-44.2	0.82842	1.50277	10.402	-0.4	11.3	0.884	22.3	226.7	37.6	164.1	108.6E
JUL 5	13 49	45.1	-12-32-38.9	0.84046	1.50017	10.456	-0.4	11.1	0.881	22.1	207.7	37.7	165.2	107.4E
JUL 7	13 52	17.2	-12-49 -4.3	0.85257	1.49756	10.503	-0.3	11.0	0.879	22.0	188.8	37.8	166.3	106.2E
JUL 9	13 54	56.9	-13 -5-58.3	0.86472	1.49497	10.542	-0.3	10.8	0.877	21.8	169.8	37.9	167.4	105.0E
JUL 11	13 57	44.1	-13-23-19.1	0.87692	1.49237	10.572	-0.3	10.7	0.875	21.6	150.8	38.1	168.5	103.8E
JUL 13	14 0	38.6	-13-41 -4.9	0.88914	1.48979	10.594	-0.2	10.5	0.873	21.4	131.8	38.2	169.5	102.6E
JUL 15	14 3	40.2	-13-59-13.5	0.90139	1.48721	10.606	-0.2	10.4	0.871	21.2	112.7	38.3	170.6	101.5E
JUL 17	14 6	48.6	-14-17-42.9	0.91364	1.48464	10.609	-0.2	10.3	0.870	21.0	93.6	38.4	171.7	100.4E
JUL 19	14 10	3.6	-14-36-30.8	0.92589	1.48208	10.606	-0.2	10.1	0.868	20.7	74.5	38.5	172.8	99.4E
JUL 21	14 13	25.1	-14-55-35.1	0.93814	1.47953	10.597	-0.1	10.0	0.867	20.5	55.4	38.6	173.9	98.3E
JUL 23	14 16	52.9	-15-14-53.6	0.95037	1.47699	10.584	-0.1	9.9	0.866	20.2	36.2	38.7	175.0	97.3E
JUL 25	14 20	26.7	-15-34-24.1	0.96259	1.47446	10.567	-0.1	9.7	0.864	19.9	17.1	38.8	176.2	96.3E
JUL 27	14 24	6.5	-15-54 -4.4	0.97478	1.47195	10.547	0.0	9.6	0.863	19.6	357.9	38.9	177.3	95.4E
JUL 29	14 27	52.0	-16-13-52.5	0.98695	1.46945	10.526	0.0	9.5	0.862	19.3	338.7	38.9	178.4	94.4E
JUL 31	14 31	43.1	-16-33-46.2	0.99910	1.46696	10.504	0.0	9.4	0.862	19.0	319.5	39.0	179.5	93.5E
AUG 2	14 35	39.7	-16-53-43.4	1.01122	1.46449	10.481	0.0	9.3	0.861	18.6	300.2	39.0	180.6	92.6E
AUG 4	14 39	41.7	-17-13-42.4	1.02331	1.46204	10.457	0.1	9.2	0.860	18.3	281.0	39.0	181.8	91.7E
AUG 6	14 43	49.1	-17-33-41.2	1.03538	1.45961	10.432	0.1	9.0	0.860	17.9	261.7	39.0	182.9	90.8E
AUG 8	14 48	1.7	-17-53-38.3	1.04741	1.45720	10.404	0.1	8.9	0.859	17.6	242.4	39.0	184.1	89.9E
AUG 10	14 52	19.6	-18-13-31.8	1.05941	1.45481	10.373	0.1	8.8	0.859	17.2	223.1	39.0	185.2	89.1E
AUG 12	14 56	42.6	-18-33-19.9	1.07137	1.45243	10.337	0.1	8.7	0.858	16.8	203.8	39.0	186.3	88.3E
AUG 14	15 1	10.7	-18-53 -0.6	1.08329	1.45008	10.298	0.2	8.6	0.858	16.4	184.5	38.9	187.5	87.5E
AUG 16	15 5	43.7	-19-12-32.0	1.09516	1.44776	10.256	0.2	8.6	0.858	15.9	165.2	38.9	188.6	86.7E
AUG 18	15 10	21.6	-19-31-52.0	1.10699	1.44546	10.212	0.2	8.5	0.858	15.5	145.9	38.8	189.8	85.9E
AUG 20	15 15	4.2	-19-50-58.8	1.11876	1.44318	10.168	0.2	8.4	0.858	15.1	126.5	38.7	191.0	85.1E
AUG 22	15 19	51.5	-20 -9-50.3	1.13048	1.44093	10.123	0.2	8.3	0.858	14.6	107.2	38.5	192.1	84.4E
AUG 24	15 24	43.3	-20-28-24.6	1.14214	1.43871	10.079	0.3	8.2	0.858	14.1	87.8	38.4	193.3	83.6E
AUG 26	15 29	39.6	-20-46-39.4	1.15376	1.43652	10.037	0.3	8.1	0.858	13.7	68.4	38.2	194.5	82.9E
AUG 28	15 34	40.2	-21 -4-33.0	1.16533	1.43435	9.997	0.3	8.0	0.858	13.2	49.1	38.1	195.6	82.2E
AUG 30	15 39	45.1	-21-22 -3.3	1.17686	1.43222	9.959	0.3	8.0	0.858	12.7	29.7	37.8	196.8	81.4E
SEP 1	15 44	54.3	-21-39 -8.5	1.18834	1.43012	9.923	0.3	7.9	0.859	12.2	10.3	37.6	198.0	80.7E
SEP 3	15 50	7.7	-21-55-47.0	1.19978	1.42805	9.888	0.4	7.8	0.859	11.7	350.9	37.4	199.2	80.1E
SEP 5	15 55	25.2	-22-11-56.9	1.21118	1.42601	9.854	0.4	7.7	0.859	11.1	331.5	37.1	200.4	79.4E
SEP 7	16 0	46.9	-22-27-36.8	1.22254	1.42401	9.818	0.4	7.7	0.860	10.6	312.1	36.8	201.6	78.7E
SEP 9	16 6	12.6	-22-42-44.6	1.23386	1.42205	9.780	0.4	7.6	0.860	10.0	292.7	36.5	202.8	78.0E
SEP 11	16 11	42.3	-22-57-18.8	1.24514	1.42012	9.741	0.4	7.5	0.861	9.5	273.3	36.2	204.0	77.4E
SEP 13	16 17	15.8	-23-11-17.4	1.25637	1.41822	9.701	0.4	7.5	0.862	8.9	253.8	35.8	205.2	76.7E
SEP 15	16 22	53.1	-23-24-38.7	1.26755	1.41637	9.661	0.4	7.4	0.862	8.4	234.4	35.4	206.4	76.1E
SEP 17	16 28	34.1	-23-37-21.0	1.27869	1.41455	9.621	0.5	7.3	0.863	7.8	215.0	35.0	207.6	75.5E
SEP 19	16 34	18.6	-23-49-22.6	1.28978	1.41278	9.582	0.5	7.3	0.864	7.2	195.5	34.6	208.8	74.9E
SEP 21	16 40	6.6	-24 -0-41.7	1.30082	1.41104	9.546	0.5	7.2	0.864	6.6	176.1	34.2	210.0	74.2E
SEP 23	16 45	57.8	-24-11-16.7	1.31183	1.40935	9.511	0.5	7.1	0.865	6.0	156.6	33.7	211.2	73.6E
SEP 25	16 51	52.1	-24-21 -5.9	1.32280	1.40770	9.481	0.5	7.1	0.866	5.4	137.2	33.2	212.5	73.0E
SEP 27	16 57	49.5	-24-30 -7.6	1.33373	1.40610	9.453	0.5	7.0	0.867	4.8	117.7	32.7	213.7	72.4E
SEP 29	17 3	49.9	-24-38-20.6	1.34464	1.40453	9.430	0.5	7.0	0.868	4.2	98.2	32.2	214.9	71.9E
OCT 1	17 9	53.1	-24-45-43.4	1.35552	1.40302	9.408	0.6	6.9	0.868	3.5	78.8	31.6	216.1	71.3E
OCT 3	17 15	59.0	-24-52-14.8	1.36637	1.40155	9.388	0.6	6.9	0.869	2.9	59.3	31.1	217.4	70.7E
OCT 5	17 22	7.6	-24-57-53.7	1.37721	1.40012	9.368	0.6	6.8	0.870	2.3	39.8	30.5	218.6	70.1E
OCT 7	17 28	18.7	-25 -2-38.7	1.38802	1.39875	9.347	0.6	6.7	0.871	1.6	20.3	29.9	219.8	69.6E
OCT 9	17 34	32.2	-25 -6-28.8	1.39880	1.39742	9.325	0.6	6.7	0.872	1.0	0.8	29.2	221.1	69.0E
OCT 11	17 40	48.0	-25 -9-22.7	1.40956	1.39614	9.303	0.6	6.6	0.873	0.4	341.3	28.6	222.3	68.4E
OCT 13	17 47	5.9	-25-11-19.6	1.42029	1.39491	9.281	0.6	6.6	0.874	-0.3	321.8	27.9	223.6	67.9E
OCT 15	17 53	25.7	-25-12-18.6	1.43100	1.39373	9.260	0.6	6.5	0.875	-0.9	302.3	27.2	224.8	67.3E
OCT 17	17 59	47.2	-25-12-18.8	1.44168	1.39260	9.240	0.7	6.5	0.877	-1.6	282.8	26.5	226.1	66.8E
OCT 19	18 6	10.4	-25-11-19.4	1.45235	1.39153	9.221	0.7	6.4	0.878	-2.2	263.2	25.8	227.3	66.3E
OCT 21	18 12	34.9	-25 -9-19.8	1.46299	1.39050	9.206	0.7	6.4	0.879	-2.9	243.7	25.1	228.6	65.7E
OCT 23	18 19	0.6	-25 -6-19.2	1.47361	1.38953	9.193	0.7	6.4	0.880	-3.5	224.2	24.3	229.8	65.2E
OCT 25	18 25	27.4	-25 -2-17.3	1.48423	1.38861	9.184	0.7	6.3	0.881	-4.2	204.6	23.5	231.1	64.7E
OCT 27	18 31	55.2	-24-57-13.5	1.49483	1.38775	9.179	0.7	6.3	0.882	-4.8	185.1	22.8	232.3	64.1E
OCT 29	18 38	23.7	-24-51 -7.8	1.50544	1.38694	9.177	0.7	6.2	0.884	-5.5	165.5	22.0	233.6	63.6E
OCT 31	18 44	52.9	-24-43-59.9	1.51604	1.38618	9.177	0.7	6.2	0.885	-6.1	145.9	21.1	234.9	63.1E
NOV 2	18 51	22.6	-24-35-49.9	1.52664	1.38548	9.177	0.7	6.1	0.886	-6.8	126.3	20.3	236.1	62.6E
NOV 4	18 57	52.7	-24-26-37.5	1.53724	1.38484	9.176	0.7	6.1	0.887	-7.4	106.8	19.5	237.4	62.1E
NOV 6	19 4	23.0	-24-16-23.0	1.54783	1.38425	9.175	0.8	6.1	0.888	-8.1	87.2	18.6	238.6	61.5E
NOV 8	19 10	53.5	-24 -5 -6.5	1.55843	1.38372	9.172	0.8	6.0	0.890	-8.7	67.6	17.7	239.9	61.0E
NOV 10	19 17	23.9	-23-52-48.3	1.56902	1.38324	9.170	0.8	6.0	0.891	-9.4	48.0	16.9	241.2	60.5E
NOV 12	19 23	54.1	-23-39-28.8	1.57961	1.38282	9.167	0.8	5.9	0.892	-10.0	28.3	16.0	242.4	60.0E
NOV 14	19 30	24.0	-23-25 -8.7	1.59020	1.38246	9.165	0.8	5.9	0.894	-10.6	8.7	15.1	243.7	59.5E
NOV 16	19 36	53.4	-23 -9-48.3	1.60079	1.38216	9.164	0.8	5.9	0.895	-11.3	349.1	14.2	245.0	59.0E
NOV 18	19 43	22.2	-22-53-28.5	1.61137	1.38191	9.164	0.8	5.8	0.896	-11.9	329.4	13.3	246.2	58.5E
NOV 20	19 49	50.1	-22-36 -9.8	1.62196	1.38172	9.167	0.8	5.8	0.898	-12.5	309.7	12.3	247.5	58.0E
NOV 22	19 56	17.2	-22-17-53.2	1.63255	1.38159	9.173	0.8	5.7	0.899	-13.1	290.1	11.4	248.8	57.5E
NOV 24	20 2	43.4	-21-58-39.4	1.64315	1.38151	9.182	0.8	5.7	0.900	-13.7	270.4	10.5	250.0	57.0E
NOV 26	20 9	8.4	-21-38-29.5	1.65377	1.38150	9.195	0.9	5.7	0.902	-14.3	250.7	9.5	251.3	56.5E
NOV 28	20 15	32.3	-21-17-24.7	1.66439	1.38154	9.209	0.9	5.6	0.903	-14.9	231.0	8.6	252.6	56.0E
NOV 30	20 21	55.0	-20-55-25.8	1.67504	1.38164	9.222	0.9	5.6	0.904	-15.4	211.3	7.6	253.9	55.5E
DEC 2	20 28	16.5	-20-32-34.0	1.68570	1.38180	9.235	0.9	5.6	0.906	-16.0	191.6	6.6	255.1</	

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	22 0	34.7	-13-19 21.2	1.84689	1.39095	9.387	1.0	5.1	0.926	-22.9	254.5	351.9	274.1	47.7E
JAN 3	22 6	30.9	-12-45-36.2	1.85774	1.39200	9.396	1.0	5.0	0.927	-23.3	234.6	350.9	275.3	47.2E
JAN 5	22 12	25.5	-12-11-23.4	1.86860	1.39310	9.401	1.1	5.0	0.929	-23.6	214.7	349.9	276.6	46.8E
JAN 7	22 18	18.6	-11-36 44.7	1.87946	1.39425	9.405	1.1	5.0	0.930	-23.9	194.8	348.9	277.8	46.3E
JAN 9	22 24	10.3	-11 -1-41.8	1.89032	1.39545	9.406	1.1	5.0	0.932	-24.2	174.9	348.0	279.1	45.8E
JAN 11	22 30	0.4	-10-26 16.2	1.90119	1.39670	9.406	1.1	4.9	0.933	-24.4	155.0	347.0	280.3	45.3E
JAN 13	22 35	49.2	-9-50-29.6	1.91205	1.39800	9.404	1.1	4.9	0.934	-24.7	135.1	346.1	281.5	44.8E
JAN 15	22 41	36.5	-9-14-23.8	1.92291	1.39935	9.402	1.1	4.9	0.936	-24.9	115.2	345.1	282.8	44.3E
JAN 17	22 47	22.5	-8-38 -0.3	1.93377	1.40075	9.401	1.1	4.8	0.937	-25.1	95.2	344.2	284.0	43.8E
JAN 19	22 53	7.1	-8 -1-20.9	1.94463	1.40220	9.400	1.1	4.8	0.938	-25.3	75.3	343.2	285.2	43.3E
JAN 21	22 58	50.5	-7-24-27.1	1.95549	1.40369	9.402	1.1	4.8	0.940	-25.5	55.4	342.3	286.5	42.8E
JAN 23	23 4	32.6	-6-47-20.7	1.96635	1.40523	9.403	1.1	4.8	0.941	-25.6	35.4	341.4	287.7	42.3E
JAN 25	23 10	13.6	-6-10 -3.0	1.97721	1.40681	9.404	1.1	4.7	0.942	-25.8	15.5	340.5	288.9	41.9E
JAN 27	23 15	53.6	-5-32 35.5	1.98808	1.40844	9.403	1.2	4.7	0.943	-25.9	355.5	339.6	290.2	41.4E
JAN 29	23 21	32.5	-4-54-59.7	1.99894	1.41011	9.399	1.2	4.7	0.945	-25.9	335.6	338.7	291.4	40.9E
JAN 31	23 27	10.6	-4-17-16.9	2.00979	1.41182	9.391	1.2	4.7	0.946	-26.0	315.6	337.9	292.6	40.4E
FEB 2	23 32	47.8	-3-39-28.8	2.02063	1.41357	9.380	1.2	4.6	0.947	-26.1	295.7	337.0	293.8	39.9E
FEB 4	23 38	24.2	-3 -1-36.7	2.03146	1.41537	9.366	1.2	4.6	0.949	-26.1	275.7	336.2	295.0	39.4E
FEB 6	23 43	59.9	-2-23-42.2	2.04227	1.41720	9.349	1.2	4.6	0.950	-26.1	255.8	335.4	296.2	38.9E
FEB 8	23 49	34.9	-1-45-46.9	2.05305	1.41907	9.328	1.2	4.6	0.951	-26.1	235.8	334.6	297.4	38.4E
FEB 10	23 55	9.2	-1 -7-52.2	2.06382	1.42098	9.305	1.2	4.5	0.952	-26.0	215.9	333.8	298.6	37.9E
FEB 12	0 0	43.0	-0-29-59.6	2.07455	1.42293	9.280	1.2	4.5	0.953	-26.0	196.0	333.0	299.8	37.4E
FEB 14	0 6	16.2	0 7 49.4	2.08525	1.42492	9.255	1.2	4.5	0.955	-25.9	176.0	332.3	301.0	36.9E
FEB 16	0 11	49.0	0 45 33.4	2.09593	1.42693	9.230	1.2	4.5	0.956	-25.8	156.1	331.6	302.2	36.4E
FEB 18	0 17	21.4	1 23 10.9	2.10658	1.42899	9.206	1.3	4.4	0.957	-25.7	136.2	330.9	303.4	35.9E
FEB 20	0 22	53.4	2 0 40.4	2.11720	1.43107	9.181	1.3	4.4	0.958	-25.5	116.3	330.2	304.6	35.4E
FEB 22	0 28	25.1	2 38 0.7	2.12779	1.43319	9.156	1.3	4.4	0.959	-25.4	96.4	329.5	305.8	34.9E
FEB 24	0 33	56.6	3 15 10.5	2.13835	1.43534	9.129	1.3	4.4	0.960	-25.2	76.5	328.9	306.9	34.4E
FEB 26	0 39	28.0	3 52 8.7	2.14888	1.43752	9.098	1.3	4.4	0.962	-25.0	56.6	328.3	308.1	33.9E
FEB 28	0 44	59.4	4 28 54.1	2.15937	1.43973	9.063	1.3	4.3	0.963	-24.8	36.7	327.7	309.3	33.4E
MAR 1	0 50	30.8	5 5 25.4	2.16981	1.44196	9.025	1.3	4.3	0.964	-24.6	16.8	327.1	310.5	32.9E
MAR 3	0 56	2.2	5 41 41.4	2.18021	1.44423	8.983	1.3	4.3	0.965	-24.3	357.0	326.6	311.6	32.4E
MAR 5	1 1	33.8	6 17 40.7	2.19056	1.44652	8.936	1.3	4.3	0.966	-24.1	337.1	326.0	312.8	31.9E
MAR 7	1 7	5.6	6 53 22.0	2.20086	1.44883	8.886	1.3	4.3	0.967	-23.8	317.3	325.5	313.9	31.4E
MAR 9	1 12	37.6	7 28 44.2	2.21109	1.45117	8.832	1.3	4.2	0.968	-23.5	297.4	325.1	315.1	30.9E
MAR 11	1 18	9.8	8 3 46.0	2.22126	1.45353	8.776	1.3	4.2	0.969	-23.2	277.6	324.6	316.2	30.4E
MAR 13	1 23	42.4	8 38 26.1	2.23137	1.45592	8.719	1.4	4.2	0.970	-22.9	257.8	324.2	317.4	29.8E
MAR 15	1 29	15.3	9 12 43.4	2.24140	1.45832	8.661	1.4	4.2	0.971	-22.5	238.0	323.8	318.5	29.3E
MAR 17	1 34	48.6	9 46 36.4	2.25137	1.46075	8.603	1.4	4.2	0.972	-22.2	218.2	323.5	319.7	28.8E
MAR 19	1 40	22.2	10 20 4.1	2.26128	1.46319	8.545	1.4	4.1	0.973	-21.8	198.4	323.1	320.8	28.3E
MAR 21	1 45	56.4	10 53 5.3	2.27111	1.46565	8.485	1.4	4.1	0.974	-21.4	178.6	322.8	321.9	27.8E
MAR 23	1 51	31.1	11 25 39.1	2.28088	1.46813	8.424	1.4	4.1	0.975	-21.0	158.9	322.5	323.1	27.3E
MAR 25	1 57	6.4	11 57 44.4	2.29057	1.47062	8.360	1.4	4.1	0.976	-20.6	139.1	322.3	324.2	26.8E
MAR 27	2 2	42.3	12 29 20.4	2.30019	1.47313	8.292	1.4	4.1	0.977	-20.2	119.4	322.1	325.3	26.3E
MAR 29	2 8	18.9	13 0 25.9	2.30973	1.47566	8.221	1.4	4.1	0.978	-19.7	99.7	321.9	326.4	25.7E
MAR 31	2 13	56.2	13 31 0.1	2.31918	1.47819	8.145	1.4	4.0	0.979	-19.3	80.0	321.7	327.5	25.2E
APR 2	2 19	34.2	14 1 1.7	2.32854	1.48074	8.065	1.4	4.0	0.980	-18.8	60.3	321.6	328.6	24.7E
APR 4	2 25	12.9	14 30 29.9	2.33781	1.48330	7.980	1.4	4.0	0.981	-18.4	40.6	321.4	329.7	24.2E
APR 6	2 30	52.5	14 59 23.5	2.34698	1.48587	7.891	1.4	4.0	0.981	-17.9	20.9	321.4	330.8	23.7E
APR 8	2 36	32.8	15 27 41.7	2.35604	1.48845	7.799	1.5	4.0	0.982	-17.4	1.3	321.3	331.9	23.2E
APR 10	2 42	13.9	15 55 23.4	2.36500	1.49103	7.705	1.5	4.0	0.983	-16.9	341.6	321.3	333.0	22.6E
APR 12	2 47	55.8	16 22 27.7	2.37384	1.49362	7.611	1.5	3.9	0.984	-16.4	322.0	321.3	334.1	22.1E
APR 14	2 53	38.4	16 48 53.5	2.38258	1.49622	7.516	1.5	3.9	0.985	-15.9	302.3	321.3	335.2	21.6E
APR 16	2 59	21.8	17 14 40.0	2.39121	1.49883	7.422	1.5	3.9	0.985	-15.4	282.7	321.3	336.3	21.1E
APR 18	3 5	6.0	17 39 46.2	2.39972	1.50143	7.326	1.5	3.9	0.986	-14.8	263.1	321.4	337.3	20.5E
APR 20	3 10	51.0	18 4 11.4	2.40813	1.50405	7.229	1.5	3.9	0.987	-14.3	243.5	321.5	338.4	20.0E
APR 22	3 16	36.8	18 27 55.0	2.41642	1.50666	7.129	1.5	3.9	0.987	-13.8	223.9	321.6	339.5	19.5E
APR 24	3 22	23.4	18 50 56.3	2.42460	1.50927	7.026	1.5	3.9	0.988	-13.2	204.3	321.8	340.6	19.0E
APR 26	3 28	10.8	19 13 14.5	2.43265	1.51189	6.919	1.5	3.9	0.989	-12.7	184.8	321.9	341.6	18.4E
APR 28	3 33	59.1	19 34 48.9	2.44058	1.51450	6.808	1.5	3.8	0.989	-12.1	165.2	322.1	342.7	17.9E
APR 30	3 39	48.1	19 55 38.8	2.44838	1.51712	6.693	1.5	3.8	0.990	-11.5	145.6	322.3	343.7	17.4E
MAY 2	3 45	37.8	20 15 43.6	2.45604	1.51973	6.573	1.5	3.8	0.991	-11.0	126.1	322.6	344.8	16.8E
MAY 4	3 51	28.3	20 35 3.6	2.46356	1.52234	6.449	1.5	3.8	0.991	-10.4	106.6	322.9	345.8	16.3E
MAY 6	3 57	19.5	20 53 35.3	2.47094	1.52494	6.321	1.5	3.8	0.992	-9.8	87.0	323.1	346.9	15.8E
MAY 8	4 3	11.3	21 11 21.0	2.47817	1.52754	6.192	1.5	3.8	0.992	-9.2	67.5	323.5	347.9	15.2E
MAY 10	4 9	3.7	21 28 19.1	2.48524	1.53013	6.061	1.5	3.8	0.993	-8.7	48.0	323.8	348.9	14.7E
MAY 12	4 14	56.6	21 44 29.1	2.49217	1.53272	5.930	1.5	3.8	0.993	-8.1	28.5	324.1	350.0	14.2E
MAY 14	4 20	50.0	21 59 50.4	2.49894	1.53530	5.799	1.5	3.7	0.994	-7.5	9.0	324.5	351.0	13.6E
MAY 16	4 26	43.9	22 14 22.5	2.50557	1.53787	5.668	1.5	3.7	0.994	-6.9	349.5	324.9	352.0	13.1E
MAY 18	4 32	38.2	22 28 5.3	2.51204	1.54043	5.535	1.5	3.7	0.995	-6.3	330.0	325.3	353.1	12.5E
MAY 20	4 38	32.8	22 40 58.3	2.51835	1.54299	5.401	1.6	3.7	0.995	-5.7	310.5	325.8	354.1	12.0E
MAY 22	4 44	27.8	22 53 1.4	2.52451	1.54553	5.264	1.6	3.7	0.996	-5.1	291.0	326.2	355.1	11.5E
MAY 24	4 50	23.0	23 4 14.4	2.53051	1.54806	5.123	1.6	3.7	0.996	-4.5	271.6	326.7	356.1	10.9E
MAY 26	4 56	18.5	23 14 36.9	2.53635	1.55058	4.979	1.6	3.7	0.997	-3.9	252.1	327.2	357.1	10.4E
MAY 28	5 2	14.2	23 24 8.8	2.54201	1.55309	4.831	1.6	3.7	0.997	-3.3	232.6	327.7	358.1	9.8E
MAY 30	5 8	9.9	23 32 49.8	2.54751	1.55558	4.678	1.6	3.7	0.997	-2.7	213.2	328.2	359.1	9.3E
JUN 1	5 14	5.7	23 40 40.0	2.55282	1.55806	4.521	1.6	3.7	0.998	-2.1	193.7	328.8	0.1	8.7E
JUN 3	5 20	1.5	23 47 39.1	2.55795	1.56052	4.360	1.6	3.7	0.998	-1.5	174.3	329.3	1.1	8.2E
JUN 5	5 25	57.2	23 53											

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	6 42 18.6	23 57 6.9	2.60959	1.59308	1.961	1.6	3.6	1.000	6.7	262.2	338.5	14.8	0.9E		
JUL 3	6 48 5.6	23 51 39.6	2.61175	1.59524	1.769	1.6	3.6	1.000	7.2	242.8	339.2	15.7	1.0W		
JUL 5	6 53 51.5	23 45 25.6	2.61368	1.59738	1.575	1.6	3.6	1.000	7.8	223.3	340.0	16.7	1.3W		
JUL 7	6 59 36.2	23 38 25.4	2.61539	1.59949	1.382	1.6	3.6	1.000	8.3	203.9	340.7	17.6	1.8W		
JUL 9	7 5 19.7	23 30 39.4	2.61687	1.60158	1.190	1.6	3.6	1.000	8.9	184.5	341.5	18.6	2.3W		
JUL 11	7 11 2.0	23 22 8.3	2.61814	1.60364	0.998	1.6	3.6	1.000	9.4	165.0	342.2	19.5	2.9W		
JUL 13	7 16 42.9	23 12 52.8	2.61918	1.60568	0.805	1.6	3.6	1.000	10.0	145.6	343.0	20.4	3.5W		
JUL 15	7 22 22.5	23 2 53.6	2.62000	1.60768	0.612	1.6	3.6	1.000	10.5	126.2	343.8	21.4	4.0W		
JUL 17	7 28 0.7	22 52 11.4	2.62059	1.60966	0.418	1.7	3.6	0.999	11.0	106.7	344.6	22.3	4.6W		
JUL 19	7 33 37.4	22 40 46.9	2.62096	1.61161	0.221	1.7	3.6	0.999	11.5	87.3	345.3	23.2	5.2W		
JUL 21	7 39 12.8	22 28 40.8	2.62110	1.61353	0.023	1.7	3.6	0.999	12.1	67.8	346.1	24.2	5.8W		
JUL 23	7 44 46.7	22 15 53.7	2.62101	1.61543	-0.179	1.7	3.6	0.999	12.6	48.4	346.9	25.1	6.4W		
JUL 25	7 50 19.1	22 2 26.5	2.62069	1.61729	-0.385	1.7	3.6	0.999	13.1	28.9	347.7	26.0	7.0W		
JUL 27	7 55 50.1	21 48 19.7	2.62012	1.61912	-0.594	1.7	3.6	0.998	13.6	9.5	348.5	27.0	7.6W		
JUL 29	8 1 19.5	21 33 34.4	2.61932	1.62093	-0.807	1.7	3.6	0.998	14.0	350.0	349.3	27.9	8.2W		
JUL 31	8 6 47.4	21 18 11.3	2.61826	1.62270	-1.022	1.7	3.6	0.998	14.5	330.6	350.1	28.8	8.8W		
AUG 2	8 12 13.7	21 2 11.3	2.61695	1.62444	-1.239	1.7	3.6	0.997	15.0	311.1	350.9	29.7	9.5W		
AUG 4	8 17 38.4	20 45 35.3	2.61540	1.62615	-1.454	1.7	3.6	0.997	15.5	291.7	351.7	30.6	10.1W		
AUG 6	8 23 1.4	20 28 23.9	2.61360	1.62783	-1.669	1.7	3.6	0.997	15.9	272.2	352.6	31.6	10.7W		
AUG 8	8 28 22.8	20 10 38.0	2.61154	1.62947	-1.883	1.7	3.6	0.996	16.4	252.7	353.4	32.5	11.3W		
AUG 10	8 33 42.6	19 52 18.5	2.60925	1.63109	-2.097	1.7	3.6	0.996	16.8	233.2	354.2	33.4	11.9W		
AUG 12	8 39 0.7	19 33 26.4	2.60670	1.63266	-2.310	1.7	3.6	0.995	17.2	213.8	355.0	34.3	12.6W		
AUG 14	8 44 17.2	19 14 2.3	2.60391	1.63421	-2.524	1.8	3.6	0.995	17.7	194.3	355.8	35.2	13.2W		
AUG 16	8 49 32.1	18 54 7.3	2.60087	1.63572	-2.739	1.8	3.6	0.994	18.1	174.8	356.6	36.1	13.8W		
AUG 18	8 54 45.4	18 33 42.1	2.59758	1.63720	-2.955	1.8	3.6	0.994	18.5	155.3	357.5	37.0	14.5W		
AUG 20	8 59 57.1	18 12 47.4	2.59404	1.63865	-3.174	1.8	3.6	0.993	18.9	135.8	358.3	37.9	15.1W		
AUG 22	9 5 7.2	17 51 24.1	2.59025	1.64006	-3.395	1.8	3.6	0.993	19.2	116.3	359.1	38.8	15.8W		
AUG 24	9 10 15.9	17 29 33.0	2.58620	1.64143	-3.620	1.8	3.6	0.992	19.6	96.8	359.9	39.7	16.4W		
AUG 26	9 15 23.0	17 7 15.0	2.58189	1.64277	-3.848	1.8	3.6	0.992	20.0	77.3	0.7	40.6	17.1W		
AUG 28	9 20 28.6	16 44 31.0	2.57731	1.64408	-4.078	1.8	3.6	0.991	20.3	57.8	1.6	41.5	17.7W		
AUG 30	9 25 32.7	16 21 22.1	2.57246	1.64535	-4.309	1.8	3.6	0.991	20.7	38.3	2.4	42.4	18.4W		
SEP 1	9 30 35.2	15 57 48.9	2.56735	1.64658	-4.539	1.8	3.6	0.990	21.0	18.7	3.2	43.3	19.0W		
SEP 3	9 35 36.3	15 33 52.5	2.56198	1.64778	-4.768	1.8	3.7	0.989	21.3	359.2	4.0	44.2	19.7W		
SEP 5	9 40 35.9	15 9 33.5	2.55634	1.64894	-4.994	1.8	3.7	0.989	21.7	339.7	4.8	45.1	20.4W		
SEP 7	9 45 34.0	14 44 53.0	2.55044	1.65006	-5.220	1.8	3.7	0.988	21.9	320.2	5.7	46.0	21.0W		
SEP 9	9 50 30.8	14 19 51.7	2.54428	1.65115	-5.444	1.8	3.7	0.987	22.2	300.6	6.5	46.9	21.7W		
SEP 11	9 55 26.1	13 54 30.6	2.53787	1.65220	-5.668	1.8	3.7	0.986	22.5	281.1	7.3	47.8	22.4W		
SEP 13	10 0 20.1	13 28 50.4	2.53119	1.65321	-5.892	1.8	3.7	0.986	22.8	261.5	8.1	48.6	23.1W		
SEP 15	10 5 12.8	13 2 52.0	2.52426	1.65419	-6.116	1.8	3.7	0.985	23.0	242.0	8.9	49.5	23.8W		
SEP 17	10 10 4.2	12 36 35.9	2.51706	1.65513	-6.341	1.8	3.7	0.984	23.3	222.5	9.7	50.4	24.4W		
SEP 19	10 14 54.5	12 10 2.9	2.50961	1.65603	-6.568	1.8	3.7	0.983	23.5	202.9	10.5	51.3	25.1W		
SEP 21	10 19 43.6	11 43 13.9	2.50189	1.65689	-6.798	1.8	3.7	0.982	23.7	183.3	11.3	52.2	25.8W		
SEP 23	10 24 31.5	11 16 9.6	2.49390	1.65771	-7.030	1.8	3.8	0.981	23.9	163.8	12.1	53.1	26.5W		
SEP 25	10 29 18.3	10 48 51.1	2.48565	1.65850	-7.263	1.8	3.8	0.981	24.1	144.2	12.8	53.9	27.2W		
SEP 27	10 34 4.1	10 21 19.1	2.47712	1.65924	-7.496	1.8	3.8	0.980	24.3	124.7	13.6	54.8	27.9W		
SEP 29	10 38 48.7	9 53 34.4	2.46833	1.65995	-7.729	1.8	3.8	0.979	24.5	105.1	14.4	55.7	28.6W		
OCT 1	10 43 32.3	9 25 37.9	2.45927	1.66062	-7.959	1.8	3.8	0.978	24.6	85.5	15.2	56.6	29.3W		
OCT 3	10 48 14.9	8 57 30.4	2.44995	1.66125	-8.186	1.8	3.8	0.977	24.8	66.0	15.9	57.5	30.1W		
OCT 5	10 52 56.6	8 29 12.7	2.44036	1.66184	-8.411	1.8	3.8	0.976	24.9	46.4	16.7	58.3	30.8W		
OCT 7	10 57 37.2	8 0 45.6	2.43052	1.66240	-8.633	1.8	3.9	0.975	25.0	26.8	17.4	59.2	31.5W		
OCT 9	11 2 17.0	7 32 10.0	2.42042	1.66291	-8.854	1.8	3.9	0.974	25.1	7.3	18.2	60.1	32.2W		
OCT 11	11 6 56.0	7 3 26.5	2.41007	1.66339	-9.073	1.8	3.9	0.973	25.2	347.7	18.9	61.0	32.9W		
OCT 13	11 11 34.1	6 34 35.9	2.39946	1.66382	-9.291	1.8	3.9	0.972	25.3	328.1	19.6	61.8	33.7W		
OCT 15	11 16 11.5	6 5 38.7	2.38860	1.66422	-9.509	1.8	3.9	0.970	25.3	308.5	20.3	62.7	34.4W		
OCT 17	11 20 48.2	5 36 35.6	2.37749	1.66457	-9.727	1.8	3.9	0.969	25.4	289.0	21.0	63.6	35.1W		
OCT 19	11 25 24.3	5 7 27.3	2.36613	1.66489	-9.947	1.8	4.0	0.968	25.4	269.4	21.7	64.5	35.9W		
OCT 21	11 29 59.7	4 38 14.6	2.35451	1.66516	-10.168	1.8	4.0	0.967	25.4	249.8	22.4	65.3	36.6W		
OCT 23	11 34 34.6	4 8 58.4	2.34264	1.66540	-10.390	1.8	4.0	0.966	25.4	230.3	23.1	66.2	37.4W		
OCT 25	11 39 8.9	3 39 39.5	2.33051	1.66560	-10.611	1.8	4.0	0.965	25.4	210.7	23.8	67.1	38.1W		
OCT 27	11 43 42.6	3 10 18.5	2.31813	1.66575	-10.829	1.8	4.0	0.964	25.4	191.1	24.4	68.0	38.9W		
OCT 29	11 48 15.9	2 40 56.4	2.30550	1.66587	-11.045	1.8	4.1	0.962	25.4	171.6	25.1	68.8	39.6W		
OCT 31	11 52 48.6	2 11 33.8	2.29262	1.66595	-11.257	1.8	4.1	0.961	25.3	152.0	25.7	69.7	40.4W		
NOV 2	11 57 20.9	1 42 11.6	2.27949	1.66599	-11.465	1.7	4.1	0.960	25.3	132.5	26.3	70.6	41.2W		
NOV 4	12 1 52.8	1 12 50.6	2.26613	1.66598	-11.669	1.7	4.1	0.959	25.2	112.9	26.9	71.4	41.9W		
NOV 6	12 6 24.2	0 43 31.5	2.25254	1.66594	-11.870	1.7	4.2	0.957	25.1	93.4	27.5	72.3	42.7W		
NOV 8	12 10 55.3	0 14 15.0	2.23871	1.66586	-12.067	1.7	4.2	0.956	25.0	73.8	28.1	73.2	43.5W		
NOV 10	12 15 26.2	0-14-58.4	2.22466	1.66574	-12.262	1.7	4.2	0.955	24.9	54.3	28.7	74.1	44.3W		
NOV 12	12 19 56.7	0-44-7.9	2.21039	1.66558	-12.455	1.7	4.2	0.954	24.8	34.8	29.2	74.9	45.1W		
NOV 14	12 24 27.1	-1-13-13.2	2.19589	1.66538	-12.648	1.7	4.3	0.952	24.7	15.2	29.8	75.8	45.8W		
NOV 16	12 28 57.3	-1-42-13.4	2.18117	1.66513	-12.841	1.7	4.3	0.951	24.5	355.7	30.3	76.7	46.6W		
NOV 18	12 33 27.3	-2-11-7.8	2.16622	1.66485	-13.033	1.7	4.3	0.950	24.4	336.2	30.8	77.6	47.4W		
NOV 20	12 37 57.3	-2-39-55.7	2.15106	1.66453	-13.225	1.7	4.4	0.948	24.2	316.7	31.3	78.4	48.2W		
NOV 22	12 42 27.1	-3-8-36.3	2.13567	1.66417	-13.415	1.7	4.4	0.947	24.0	297.2	31.8	79.3	49.0W		
NOV 24	12 46 56.8	-3-37-8.9	2.12007	1.66377	-13.601	1.6	4.4	0.946	23.8	277.7	32.3	80.2	49.8W		
NOV 26	12 51 26.4	-4-5-32.7	2.10425	1.66333	-13.784	1.6	4.5	0.944	23.6	258.2	32.7	81.1	50.6W		
NOV 28	12 55 55.9	-4-33-47.0	2.08823	1.66286	-13.961	1.6	4.5	0.943	23.4	238.7	33.2	81.9	51.4W		
NOV 30	13 0 25.4	-5-1-50.9	2.07200	1.66234	-14.134	1.6	4.5	0.942	23.2	219.2	33.6	82.8	52.2W		
DEC 2	13 4 54.8	-5-29-43.8	2.05558	1.66178	-14.302	1.6	4.6	0.940	22.9	199.7	34.0	83.7	53.1W		
DEC 4	13 9 24.1	-5-57-24.9	2.03897	1.66118	-14.464	1.6	4.6	0.939	22.7	180.3	34.4	84.6	53.9W		
DEC 6	13 13 53.5	-6-24-53.7	2.02217	1.66055	-14.622	1.6	4.6	0.937	22.4	160.8	34.7	85.4	54.7W		
DEC 8	13 18 22.9	-6-52-9.5	2.00519	1.6598											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	14 12 21.2	-11-58-51.2	1.78861	1.64881	-16.381	1.4	5.2	0.920	18.3	268.6	38.0	96.9	65.7W	
JAN 3	14 16 51.2	-12-22-22.6	1.76963	1.64765	-16.482	1.3	5.3	0.918	17.9	249.2	38.1	97.8	66.6W	
JAN 5	14 21 21.2	-12-45-32.4	1.75053	1.64645	-16.577	1.3	5.4	0.917	17.6	229.9	38.2	98.7	67.4W	
JAN 7	14 25 51.3	-13 -8-20.3	1.73133	1.64521	-16.668	1.3	5.4	0.916	17.2	210.6	38.3	99.6	68.3W	
JAN 9	14 30 21.2	-13-30-46.1	1.71203	1.64394	-16.754	1.3	5.5	0.915	16.8	191.2	38.4	100.5	69.2W	
JAN 11	14 34 51.2	-13-52-49.2	1.69263	1.64263	-16.838	1.2	5.5	0.913	16.4	171.9	38.4	101.4	70.1W	
JAN 13	14 39 21.1	-14-14-29.3	1.67313	1.64129	-16.920	1.2	5.6	0.912	16.0	152.6	38.5	102.3	71.0W	
JAN 15	14 43 50.8	-14-35-45.7	1.65354	1.63991	-17.000	1.2	5.7	0.911	15.6	133.3	38.5	103.2	71.9W	
JAN 17	14 48 20.4	-14-56-38.1	1.63386	1.63850	-17.076	1.2	5.7	0.910	15.2	114.1	38.5	104.1	72.8W	
JAN 19	14 52 49.8	-15-17 -6.0	1.61409	1.63705	-17.148	1.2	5.8	0.908	14.8	94.8	38.5	105.0	73.7W	
JAN 21	14 57 18.9	-15-37 -8.8	1.59425	1.63557	-17.213	1.1	5.9	0.907	14.4	75.5	38.5	105.9	74.6W	
JAN 23	15 1 47.7	-15-56-46.3	1.57433	1.63405	-17.272	1.1	6.0	0.906	14.0	56.3	38.4	106.8	75.5W	
JAN 25	15 6 16.0	-16-15-57.9	1.55435	1.63250	-17.324	1.1	6.0	0.905	13.6	37.0	38.4	107.7	76.4W	
JAN 27	15 10 43.8	-16-34-43.3	1.53431	1.63092	-17.370	1.0	6.1	0.904	13.2	17.8	38.3	108.6	77.3W	
JAN 29	15 15 11.1	-16-53 -2.1	1.51422	1.62930	-17.408	1.0	6.2	0.903	12.7	358.6	38.2	109.6	78.2W	
JAN 31	15 19 37.8	-17-10-54.2	1.49410	1.62765	-17.439	1.0	6.3	0.902	12.3	339.3	38.1	110.5	79.2W	
FEB 2	15 24 3.8	-17-28-19.3	1.47394	1.62597	-17.464	1.0	6.4	0.901	11.9	320.1	38.0	111.4	80.1W	
FEB 4	15 28 29.1	-17-45-17.4	1.45376	1.62426	-17.483	0.9	6.4	0.900	11.5	300.9	37.9	112.3	81.0W	
FEB 6	15 32 53.6	-18 -1-48.7	1.43355	1.62252	-17.497	0.9	6.5	0.899	11.0	281.7	37.7	113.2	82.0W	
FEB 8	15 37 17.3	-18-17-52.9	1.41334	1.62074	-17.508	0.9	6.6	0.898	10.6	262.5	37.6	114.1	82.9W	
FEB 10	15 41 40.0	-18-33-30.2	1.39311	1.61894	-17.516	0.8	6.7	0.898	10.2	243.4	37.4	115.1	83.9W	
FEB 12	15 46 1.7	-18-48-40.3	1.37287	1.61710	-17.521	0.8	6.8	0.897	9.8	224.2	37.2	116.0	84.8W	
FEB 14	15 50 22.3	-19 -3-23.3	1.35263	1.61524	-17.523	0.8	6.9	0.896	9.3	205.1	37.0	116.9	85.8W	
FEB 16	15 54 41.7	-19-17-39.1	1.33239	1.61334	-17.519	0.7	7.0	0.896	8.9	185.9	36.8	117.9	86.8W	
FEB 18	15 58 59.7	-19-31-27.8	1.31216	1.61142	-17.509	0.7	7.1	0.895	8.5	166.8	36.6	118.8	87.7W	
FEB 20	16 3 16.2	-19-44-49.5	1.29195	1.60946	-17.492	0.7	7.3	0.895	8.1	147.6	36.4	119.7	88.7W	
FEB 22	16 7 31.0	-19-57-44.1	1.27175	1.60748	-17.468	0.6	7.4	0.894	7.7	128.5	36.2	120.7	89.7W	
FEB 24	16 11 43.9	-20-10-11.8	1.25159	1.60547	-17.437	0.6	7.5	0.894	7.2	109.4	35.9	121.6	90.7W	
FEB 26	16 15 55.0	-20-22-12.9	1.23147	1.60344	-17.398	0.6	7.6	0.893	6.8	90.3	35.7	122.5	91.7W	
FEB 28	16 20 3.9	-20-33-47.6	1.21140	1.60138	-17.351	0.5	7.7	0.893	6.4	71.2	35.4	123.5	92.8W	
MAR 2	16 24 10.6	-20-44-56.5	1.19139	1.59929	-17.297	0.5	7.9	0.893	6.0	52.2	35.2	124.4	93.8W	
MAR 4	16 28 15.0	-20-55-40.1	1.17145	1.59717	-17.236	0.5	8.0	0.893	5.6	33.1	34.9	125.4	94.8W	
MAR 6	16 32 16.9	-21 -5-59.0	1.15158	1.59503	-17.169	0.4	8.1	0.893	5.2	14.1	34.6	126.3	95.9W	
MAR 8	16 36 16.2	-21-15-53.9	1.13179	1.59287	-17.098	0.4	8.3	0.893	4.8	355.0	34.3	127.3	96.9W	
MAR 10	16 40 12.7	-21-25-25.3	1.11208	1.59068	-17.024	0.3	8.4	0.893	4.4	336.0	34.0	128.2	98.0W	
MAR 12	16 44 6.3	-21-34-33.9	1.09246	1.58847	-16.946	0.3	8.6	0.893	4.1	317.0	33.7	129.2	99.1W	
MAR 14	16 47 56.8	-21-43-20.3	1.07293	1.58623	-16.864	0.2	8.7	0.893	3.7	298.0	33.4	130.2	100.2W	
MAR 16	16 51 43.9	-21-51-45.3	1.05350	1.58398	-16.776	0.2	8.9	0.894	3.3	279.0	33.1	131.1	101.3W	
MAR 18	16 55 27.4	-21-59-49.7	1.03418	1.58170	-16.681	0.2	9.1	0.894	3.0	260.0	32.8	132.1	102.4W	
MAR 20	16 59 7.1	-22 -7-34.2	1.01497	1.57940	-16.578	0.1	9.2	0.895	2.6	241.0	32.5	133.1	103.5W	
MAR 22	17 2 42.6	-22-14-59.7	0.99588	1.57708	-16.468	0.1	9.4	0.896	2.3	222.1	32.2	134.0	104.7W	
MAR 24	17 6 13.7	-22-22 -7.1	0.97693	1.57473	-16.348	0.0	9.6	0.897	1.9	203.2	31.9	135.0	105.8W	
MAR 26	17 9 40.2	-22-28-57.4	0.95812	1.57237	-16.219	0.0	9.8	0.897	1.6	184.3	31.6	136.0	107.0W	
MAR 28	17 13 1.8	-22-35-31.8	0.93946	1.56999	-16.081	-0.1	10.0	0.898	1.3	165.4	31.3	137.0	108.2W	
MAR 30	17 16 18.3	-22-41-51.4	0.92097	1.56760	-15.934	-0.1	10.2	0.900	1.0	146.5	31.0	138.0	109.4W	
APR 1	17 19 29.5	-22-47-57.8	0.90265	1.56518	-15.779	-0.2	10.4	0.901	0.7	127.6	30.7	138.9	110.7W	
APR 3	17 22 35.0	-22-53-52.2	0.88452	1.56275	-15.616	-0.2	10.6	0.902	0.4	108.8	30.4	139.9	111.9W	
APR 5	17 25 34.6	-22-59-36.1	0.86658	1.56030	-15.446	-0.3	10.8	0.904	0.2	89.9	30.1	140.9	113.2W	
APR 7	17 28 28.1	-23 -5-10.9	0.84884	1.55783	-15.271	-0.3	11.0	0.906	-0.1	71.1	29.8	141.9	114.5W	
APR 9	17 31 15.1	-23-10-37.9	0.83130	1.55535	-15.091	-0.4	11.3	0.907	-0.3	52.4	29.6	142.9	115.8W	
APR 11	17 33 55.3	-23-15-58.7	0.81398	1.55286	-14.903	-0.5	11.5	0.909	-0.5	33.6	29.3	143.9	117.2W	
APR 13	17 36 28.3	-23-21-14.6	0.79688	1.55035	-14.707	-0.5	11.8	0.911	-0.7	14.9	29.0	144.9	118.5W	
APR 15	17 38 53.8	-23-26-27.1	0.78000	1.54784	-14.501	-0.6	12.0	0.914	-0.9	356.2	28.8	145.9	119.9W	
APR 17	17 41 11.1	-23-31-37.7	0.76338	1.54530	-14.285	-0.6	12.3	0.916	-1.1	337.5	28.6	147.0	121.4W	
APR 19	17 43 20.1	-23-36-47.8	0.74701	1.54276	-14.057	-0.7	12.5	0.919	-1.3	318.8	28.3	148.0	122.8W	
APR 21	17 45 20.1	-23-41-58.8	0.73091	1.54021	-13.816	-0.7	12.8	0.921	-1.4	300.2	28.1	149.0	124.3W	
APR 23	17 47 10.8	-23-47-12.0	0.71509	1.53765	-13.562	-0.8	13.1	0.924	-1.5	281.6	27.9	150.0	125.8W	
APR 25	17 48 51.9	-23-52-28.9	0.69958	1.53507	-13.294	-0.9	13.4	0.927	-1.6	263.0	27.7	151.0	127.4W	
APR 27	17 50 22.9	-23-57-50.9	0.68439	1.53250	-13.013	-0.9	13.7	0.930	-1.7	244.5	27.6	152.1	129.0W	
APR 29	17 51 43.5	-24 -3-19.4	0.66952	1.52991	-12.719	-1.0	14.0	0.933	-1.8	226.0	27.4	153.1	130.6W	
MAY 1	17 52 53.3	-24 -8-55.7	0.65501	1.52732	-12.412	-1.1	14.3	0.936	-1.8	207.5	27.3	154.1	132.3W	
MAY 3	17 53 51.9	-24-14-40.7	0.64085	1.52472	-12.095	-1.1	14.6	0.940	-1.8	189.1	27.2	155.2	134.0W	
MAY 5	17 54 39.1	-24-20-35.2	0.62707	1.52211	-11.766	-1.2	14.9	0.943	-1.8	170.7	27.1	156.2	135.8W	
MAY 7	17 55 14.5	-24-26-39.9	0.61367	1.51951	-11.426	-1.2	15.3	0.947	-1.8	152.4	27.0	157.3	137.6W	
MAY 9	17 55 37.6	-24-32-55.1	0.60068	1.51690	-11.073	-1.3	15.6	0.951	-1.7	134.0	27.0	158.3	139.4W	
MAY 11	17 55 48.2	-24-39-21.1	0.58810	1.51428	-10.706	-1.4	15.9	0.954	-1.7	115.8	27.0	159.4	141.3W	
MAY 13	17 55 45.8	-24-45-57.6	0.57595	1.51167	-10.324	-1.4	16.3	0.958	-1.6	97.5	27.0	160.4	143.2W	
MAY 15	17 55 30.2	-24-52-44.0	0.56425	1.50905	-9.925	-1.5	16.6	0.962	-1.4	79.3	27.0	161.5	145.2W	
MAY 17	17 55 1.1	-24-59-39.3	0.55303	1.50644	-9.508	-1.6	16.9	0.966	-1.3	61.2	27.1	162.6	147.3W	
MAY 19	17 54 18.4	-25 -6-42.1	0.54229	1.50383	-9.074	-1.6	17.3	0.970	-1.1	43.1	27.1	163.6	149.3W	
MAY 21	17 53 22.1	-25-13-50.7	0.53207	1.50122	-8.622	-1.7	17.6	0.973	-0.9	25.0	27.2	164.7	151.5W	
MAY 23	17 52 12.2	-25-21 -3.2	0.52238	1.49861	-8.151	-1.8	17.9	0.977	-0.7	7.0	27.4	165.8	153.6W	
MAY 25	17 50 49.1	-25-28-17.3	0.51324	1.49601	-7.664	-1.8	18.3	0.980	-0.4	349.0	27.5	166.9	155.8W	
MAY 27	17 49 13.0	-25-35-30.3	0.50468	1.49341	-7.162	-1.9	18.6	0.984	-0.2	331.1	27.7	167.9	158.1W	
MAY 29	17 47 24.7	-25-42-39.4	0.49670	1.49082	-6.647	-2.0	18.9	0.987	0.1	313.2	27.9	169.0	160.4W	
MAY 31	17 45 24.7	-25-49-41.4	0.48932	1.48823	-6.122	-2.0	19.1	0.990	0.5	295.3	28.1	170.1	162.7W	
JUN 2	17 43 13.8	-25-56 33.1	0.48256	1.48566	-5.588	-2.1	19.4	0.992	0.8	277.5	28.3	171.2	165.1W	
JUN 4	17 40 53.0	-26 -3-11.1	0.47642	1.48309	-5.046	-2.1	19.7	0.994	1.1	259.7	28.6	172.3	167.5W	
JUN 6	17 38 23.2	-26 -9-32.0	0.47090	1.48053	-4.497	-2.2	19.9	0.996	1.5	242.0	28.9	173.4	169.8W	
JUN 8	17 35 45.6	-26-15-32.5	0.46603	1.4										

2001 MARS

Geocentric Planetary Ephemeris

2001 MARS

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	17 3	5.7	-26-51 -7.1	0.45782	1.44864	2.563	-2.2	20.5	0.980	6.1	11.6	32.4	188.1	156.8E
JUL 4	17 1	5.1	-26-51-25.0	0.46104	1.44632	3.016	-2.1	20.3	0.976	6.4	353.8	32.6	189.3	154.5E
JUL 6	16 59	16.9	-26-51-30.2	0.46478	1.44403	3.451	-2.1	20.2	0.972	6.6	335.9	32.7	190.4	152.2E
JUL 8	16 57	41.9	-26-51-25.8	0.46900	1.44177	3.868	-2.0	20.0	0.968	6.8	318.0	32.9	191.6	149.9E
JUL 10	16 56	20.6	-26-51-14.8	0.47370	1.43953	4.266	-2.0	19.8	0.963	6.9	300.0	33.0	192.8	147.7E
JUL 12	16 55	13.6	-26-50-60.0	0.47885	1.43733	4.646	-2.0	19.6	0.958	7.1	282.0	33.1	193.9	145.6E
JUL 14	16 54	21.2	-26-50-43.9	0.48443	1.43515	5.008	-1.9	19.3	0.954	7.2	263.9	33.2	195.1	143.5E
JUL 16	16 53	43.6	-26-50-29.0	0.49041	1.43300	5.352	-1.9	19.1	0.949	7.2	245.8	33.2	196.3	141.5E
JUL 18	16 53	21.2	-26-50-17.5	0.49678	1.43088	5.678	-1.8	18.9	0.944	7.3	227.7	33.3	197.5	139.5E
JUL 20	16 53	14.0	-26-50-11.4	0.50352	1.42880	5.985	-1.8	18.6	0.939	7.3	209.5	33.3	198.7	137.6E
JUL 22	16 53	22.0	-26-50-12.1	0.51060	1.42675	6.273	-1.7	18.3	0.934	7.3	191.2	33.3	199.8	135.7E
JUL 24	16 53	45.2	-26-50-20.9	0.51800	1.42473	6.540	-1.7	18.1	0.929	7.2	172.9	33.2	201.0	133.9E
JUL 26	16 54	23.4	-26-50-38.2	0.52570	1.42275	6.787	-1.6	17.8	0.924	7.2	154.6	33.2	202.2	132.1E
JUL 28	16 55	16.2	-26-51 -4.2	0.53367	1.42080	7.016	-1.6	17.6	0.920	7.1	136.1	33.1	203.4	130.4E
JUL 30	16 56	23.3	-26-51-38.6	0.54190	1.41889	7.229	-1.5	17.3	0.915	6.9	117.7	33.0	204.6	128.8E
AUG 1	16 57	44.4	-26-52-20.6	0.55037	1.41702	7.428	-1.5	17.0	0.911	6.8	99.2	32.9	205.8	127.2E
AUG 3	16 59	18.8	-26-53 -9.2	0.55906	1.41519	7.615	-1.5	16.8	0.906	6.6	80.7	32.7	207.0	125.6E
AUG 5	17 1	6.2	-26-54 -3.0	0.56796	1.41340	7.790	-1.4	16.5	0.902	6.4	62.1	32.6	208.3	124.1E
AUG 7	17 3	6.2	-26-55 -0.5	0.57705	1.41164	7.956	-1.4	16.2	0.898	6.2	43.5	32.4	209.5	122.7E
AUG 9	17 5	18.3	-26-56 -0.1	0.58633	1.40993	8.113	-1.3	16.0	0.894	5.9	24.8	32.2	210.7	121.2E
AUG 11	17 7	42.2	-26-56-60.0	0.59579	1.40827	8.262	-1.3	15.7	0.891	5.7	6.1	31.9	211.9	119.9E
AUG 13	17 10	17.4	-26-57-58.5	0.60541	1.40664	8.403	-1.2	15.5	0.887	5.4	347.4	31.7	213.1	118.5E
AUG 15	17 13	3.6	-26-58-53.8	0.61520	1.40506	8.537	-1.2	15.2	0.884	5.1	328.6	31.4	214.4	117.2E
AUG 17	17 16	0.5	-26-59-44.1	0.62513	1.40353	8.664	-1.2	15.0	0.881	4.7	309.8	31.1	215.6	116.0E
AUG 19	17 19	7.6	-27 0-27.5	0.63521	1.40204	8.782	-1.1	14.7	0.878	4.4	291.0	30.8	216.8	114.7E
AUG 21	17 22	24.7	-27 -1 -1.9	0.64542	1.40059	8.890	-1.1	14.5	0.875	4.0	272.1	30.5	218.0	113.5E
AUG 23	17 25	51.4	-27 -1-25.3	0.65575	1.39920	8.990	-1.0	14.3	0.872	3.6	253.2	30.2	219.3	112.4E
AUG 25	17 29	27.2	-27 -1-35.3	0.66618	1.39785	9.082	-1.0	14.1	0.869	3.2	234.2	29.8	220.5	111.3E
AUG 27	17 33	11.7	-27 -1-29.9	0.67672	1.39655	9.168	-1.0	13.8	0.867	2.8	215.3	29.4	221.8	110.2E
AUG 29	17 37	4.5	-27 -1 -6.6	0.68736	1.39530	9.249	-0.9	13.6	0.865	2.4	196.3	29.0	223.0	109.1E
AUG 31	17 41	5.2	-27 0-23.4	0.69809	1.39410	9.328	-0.9	13.4	0.863	2.0	177.3	28.6	224.2	108.1E
SEP 2	17 45	13.3	-26-59-17.9	0.70891	1.39295	9.404	-0.8	13.2	0.861	1.5	158.2	28.1	225.5	107.1E
SEP 4	17 49	28.4	-26-57-48.0	0.71981	1.39185	9.479	-0.8	13.0	0.859	1.0	139.2	27.7	226.7	106.1E
SEP 6	17 53	50.3	-26-55-51.7	0.73081	1.39081	9.553	-0.8	12.8	0.857	0.6	120.1	27.2	228.0	105.1E
SEP 8	17 58	18.6	-26-53-26.9	0.74188	1.38982	9.626	-0.7	12.6	0.856	0.1	101.0	26.7	229.3	104.2E
SEP 10	18 2	53.0	-26-50-31.8	0.75304	1.38888	9.699	-0.7	12.4	0.854	-0.4	81.8	26.2	230.5	103.3E
SEP 12	18 7	33.2	-26-47 -4.9	0.76429	1.38799	9.771	-0.7	12.3	0.853	-0.9	62.7	25.6	231.8	102.4E
SEP 14	18 12	19.0	-26-43 -4.4	0.77562	1.38716	9.841	-0.6	12.1	0.852	-1.4	43.5	25.1	233.0	101.5E
SEP 16	18 17	10.2	-26-38-28.8	0.78702	1.38638	9.909	-0.6	11.9	0.851	-2.0	24.3	24.5	234.3	100.6E
SEP 18	18 22	6.3	-26-33-16.5	0.79850	1.38566	9.973	-0.6	11.7	0.850	-2.5	5.1	23.9	235.5	99.8E
SEP 20	18 27	7.3	-26-27-26.0	0.81006	1.38499	10.033	-0.5	11.6	0.849	-3.0	345.9	23.3	236.8	99.0E
SEP 22	18 32	12.7	-26-20-55.9	0.82168	1.38438	10.090	-0.5	11.4	0.848	-3.6	326.6	22.7	238.1	98.2E
SEP 24	18 37	22.3	-26-13-45.0	0.83337	1.38383	10.145	-0.5	11.2	0.848	-4.1	307.4	22.0	239.3	97.4E
SEP 26	18 42	35.8	-26 -5-52.3	0.84512	1.38333	10.200	-0.4	11.1	0.847	-4.7	288.1	21.4	240.6	96.6E
SEP 28	18 47	52.8	-25-57-16.5	0.85693	1.38289	10.254	-0.4	10.9	0.847	-5.3	268.8	20.7	241.9	95.8E
SEP 30	18 53	13.0	-25-47-56.7	0.86881	1.38251	10.309	-0.4	10.8	0.846	-5.8	249.5	20.0	243.1	95.1E
OCT 2	18 58	36.2	-25-37-52.0	0.88075	1.38218	10.366	-0.4	10.6	0.846	-6.4	230.1	19.3	244.4	94.3E
OCT 4	19 4	2.1	-25-27 -1.6	0.89276	1.38191	10.424	-0.3	10.5	0.846	-7.0	210.8	18.6	245.7	93.6E
OCT 6	19 9	30.4	-25-15-24.9	0.90483	1.38170	10.485	-0.3	10.4	0.846	-7.5	191.4	17.9	246.9	92.9E
OCT 8	19 15	1.1	-25 -3 -1.5	0.91698	1.38155	10.547	-0.3	10.2	0.846	-8.1	172.1	17.1	248.2	92.2E
OCT 10	19 20	33.8	-24-49-51.0	0.92920	1.38145	10.610	-0.2	10.1	0.846	-8.7	152.7	16.4	249.5	91.5E
OCT 12	19 26	8.4	-24-35-53.0	0.94149	1.38141	10.675	-0.2	9.9	0.846	-9.2	133.3	15.6	250.7	90.8E
OCT 14	19 31	44.8	-24-21 -7.4	0.95386	1.38143	10.738	-0.2	9.8	0.846	-9.8	113.8	14.9	252.0	90.1E
OCT 16	19 37	22.7	-24 -5-33.7	0.96630	1.38151	10.799	-0.2	9.7	0.846	-10.4	94.4	14.1	253.3	89.4E
OCT 18	19 43	1.9	-23-49-12.1	0.97880	1.38165	10.858	-0.1	9.6	0.846	-11.0	74.9	13.3	254.6	88.8E
OCT 20	19 48	42.4	-23-32 -2.4	0.99138	1.38184	10.915	-0.1	9.4	0.847	-11.5	55.5	12.5	255.8	88.1E
OCT 22	19 54	24.0	-23-14 -4.9	1.00402	1.38209	10.970	-0.1	9.3	0.847	-12.1	36.0	11.6	257.1	87.5E
OCT 24	20 0	6.2	-22-55-20.0	1.01672	1.38240	11.025	0.0	9.2	0.848	-12.7	16.5	10.8	258.4	86.8E
OCT 26	20 5	49.1	-22-35-48.1	1.02949	1.38277	11.081	0.0	9.1	0.848	-13.2	357.0	10.0	259.6	86.2E
OCT 28	20 11	32.4	-22-15-29.6	1.04232	1.38319	11.137	0.0	9.0	0.849	-13.8	337.5	9.1	260.9	85.6E
OCT 30	20 17	15.9	-21-54-24.9	1.05522	1.38367	11.195	0.0	8.9	0.850	-14.3	317.9	8.3	262.2	84.9E
NOV 1	20 22	59.5	-21-32-34.8	1.06818	1.38421	11.255	0.1	8.8	0.850	-14.9	298.4	7.4	263.4	84.3E
NOV 3	20 28	43.1	-21 -9-59.9	1.08122	1.38480	11.316	0.1	8.7	0.851	-15.4	278.8	6.5	264.7	83.7E
NOV 5	20 34	26.6	-20-46-40.9	1.09433	1.38545	11.380	0.1	8.6	0.852	-15.9	259.2	5.7	266.0	83.1E
NOV 7	20 40	9.9	-20-22-38.8	1.10751	1.38615	11.446	0.1	8.5	0.853	-16.4	239.6	4.8	267.2	82.5E
NOV 9	20 45	52.8	-19-57-54.3	1.12077	1.38691	11.512	0.2	8.4	0.854	-17.0	220.0	3.9	268.5	81.9E
NOV 11	20 51	35.4	-19-32-28.2	1.13410	1.38773	11.577	0.2	8.3	0.855	-17.5	200.4	3.0	269.7	81.3E
NOV 13	20 57	17.5	-19 -6-21.3	1.14751	1.38860	11.641	0.2	8.2	0.855	-18.0	180.8	2.1	271.0	80.7E
NOV 15	21 2	59.2	-18-39-34.5	1.16100	1.38952	11.701	0.2	8.1	0.856	-18.4	161.1	1.2	272.2	80.1E
NOV 17	21 8	40.4	-18-12 -8.9	1.17455	1.39049	11.759	0.3	8.0	0.857	-18.9	141.5	0.3	273.5	79.5E
NOV 19	21 14	20.9	-17-44 -5.5	1.18816	1.39152	11.815	0.3	7.9	0.859	-19.4	121.8	359.4	274.8	78.9E
NOV 21	21 20	0.8	-17-15-25.6	1.20184	1.39260	11.870	0.3	7.8	0.860	-19.8	102.1	358.5	276.0	78.3E
NOV 23	21 25	39.8	-16-46-10.5	1.21558	1.39374	11.924	0.3	7.7	0.861	-20.3	82.4	357.6	277.2	77.7E
NOV 25	21 31	18.0	-16-16-21.5	1.22939	1.39492	11.977	0.3	7.6	0.862	-20.7	62.7	356.7	278.5	77.1E
NOV 27	21 36	55.3	-15-45-59.8	1.24325	1.39615	12.031	0.4	7.5	0.863	-21.1	43.0	355.8	279.7	76.6E
NOV 29	21 42	31.7	-15-15 -6.8	1.25718	1.39744	12.086	0.4	7.5	0.864	-21.5	23.2	354.9	281.0	76.0E
DEC 1	21 48	7.0	-14-43-43.7	1.27117	1.39877	12.142	0.4	7.4	0.866	-21.9	3.5	353.9	282.2	75.4E
DEC 3	21 53	41.5	-14-11-52.0	1.28523	1.40015	12.200	0.4	7.3	0.8					

Date (O DT)	RA (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	23 15 29.7	-5-31-20.3	1.503303	1.42610	12.869	0.8	6.2	0.888	-25.9	46.3	339.7	301.7	66.2E
JAN 4	23 20 50.6	-4-54-50.0	1.51791	1.42814	12.904	0.8	6.2	0.889	-26.0	26.5	338.8	302.9	65.6E
JAN 6	23 26 10.8	-4-18-13.9	1.53284	1.43022	12.938	0.8	6.1	0.891	-26.1	6.6	338.0	304.1	65.1E
JAN 8	23 31 30.5	-3-41-32.9	1.54780	1.43232	12.969	0.8	6.1	0.892	-26.1	346.7	337.2	305.2	64.5E
JAN 10	23 36 49.8	-3-4-48.2	1.56280	1.43446	12.995	0.8	6.0	0.894	-26.2	326.8	336.4	306.4	63.9E
JAN 12	23 42 6.7	-2-28-1.2	1.57782	1.43663	13.017	0.9	5.9	0.896	-26.2	307.0	335.6	307.6	63.3E
JAN 14	23 47 27.2	-1-51-13.0	1.59287	1.43882	13.035	0.9	5.9	0.897	-26.2	287.1	334.9	308.8	62.8E
JAN 16	23 52 45.4	-1-14-25.0	1.60793	1.44105	13.048	0.9	5.8	0.899	-26.2	267.2	334.1	309.9	62.2E
JAN 18	23 58 3.3	0-37-38.5	1.62301	1.44330	13.058	0.9	5.8	0.900	-26.2	247.3	333.4	311.1	61.6E
JAN 20	0 3 20.9	0 0-54.9	1.63810	1.44558	13.066	0.9	5.7	0.902	-26.1	227.5	332.6	312.3	61.0E
JAN 22	0 8 38.3	0 35 44.5	1.65319	1.44789	13.070	1.0	5.7	0.903	-26.0	207.6	331.9	313.4	60.4E
JAN 24	0 13 55.6	1 12 18.5	1.66829	1.45021	13.073	1.0	5.6	0.905	-25.9	187.7	331.2	314.6	59.9E
JAN 26	0 19 12.7	1 48 45.8	1.68339	1.45257	13.075	1.0	5.6	0.906	-25.8	167.9	330.6	315.7	59.3E
JAN 28	0 24 29.7	2 25 5.1	1.69850	1.45494	13.077	1.0	5.5	0.908	-25.7	148.0	329.9	316.9	58.7E
JAN 30	0 29 46.7	3 1 15.1	1.71361	1.45734	13.078	1.0	5.5	0.909	-25.5	128.2	329.3	318.0	58.1E
FEB 1	0 35 3.7	3 37 14.5	1.72871	1.45975	13.079	1.0	5.4	0.911	-25.4	108.3	328.7	319.1	57.5E
FEB 3	0 40 20.7	4 13 2.5	1.74382	1.46219	13.077	1.1	5.4	0.913	-25.2	88.5	328.1	320.3	57.0E
FEB 5	0 45 37.9	4 43 38.1	1.75892	1.46464	13.072	1.1	5.3	0.914	-25.0	68.7	327.5	321.4	56.4E
FEB 7	0 50 55.4	5 24 0.4	1.77402	1.46711	13.063	1.1	5.3	0.916	-24.8	48.9	327.0	322.5	55.8E
FEB 9	0 56 13.2	5 59 8.2	1.78910	1.46960	13.048	1.1	5.2	0.917	-24.5	29.1	326.5	323.7	55.2E
FEB 11	1 1 31.2	6 34 0.4	1.80416	1.47210	13.029	1.1	5.2	0.919	-24.3	9.3	326.0	324.8	54.6E
FEB 13	1 6 49.7	7 8 35.9	1.81919	1.47462	13.005	1.1	5.1	0.920	-24.0	349.5	325.5	325.9	54.0E
FEB 15	1 12 8.5	7 42 53.5	1.83420	1.47715	12.976	1.2	5.1	0.922	-23.8	329.7	325.0	327.0	53.4E
FEB 17	1 17 27.8	8 16 52.1	1.84917	1.47969	12.944	1.2	5.1	0.923	-23.5	309.9	324.6	328.1	52.9E
FEB 19	1 22 47.6	8 50 30.6	1.86410	1.48225	12.909	1.2	5.0	0.925	-23.1	290.1	324.2	329.2	52.3E
FEB 21	1 28 7.9	9 23 47.9	1.87899	1.48481	12.871	1.2	5.0	0.926	-22.8	270.4	323.8	330.3	51.7E
FEB 23	1 33 28.7	9 56 42.8	1.89384	1.48738	12.832	1.2	4.9	0.928	-22.5	250.6	323.5	331.4	51.1E
FEB 25	1 38 50.0	10 29 14.2	1.90864	1.48996	12.791	1.2	4.9	0.929	-22.1	230.9	323.1	332.5	50.5E
FEB 27	1 44 12.0	11 1 21.0	1.92339	1.49255	12.751	1.3	4.9	0.931	-21.8	211.2	322.8	333.6	49.9E
MAR 1	1 49 34.6	11 33 2.1	1.93809	1.49515	12.709	1.3	4.8	0.932	-21.4	191.4	322.6	334.7	49.3E
MAR 3	1 54 57.8	12 4 16.6	1.95275	1.49775	12.666	1.3	4.8	0.934	-21.0	171.7	322.3	335.8	48.7E
MAR 5	2 0 21.8	12 35 3.8	1.96735	1.50035	12.620	1.3	4.8	0.935	-20.6	152.0	322.1	336.9	48.2E
MAR 7	2 5 46.6	13 5 23.0	1.98190	1.50296	12.569	1.3	4.7	0.937	-20.2	132.3	321.9	337.9	47.6E
MAR 9	2 11 12.2	13 35 13.1	1.99639	1.50557	12.513	1.3	4.7	0.938	-19.8	112.7	321.7	339.0	47.0E
MAR 11	2 16 38.6	14 4 33.2	2.01081	1.50818	12.452	1.3	4.7	0.939	-19.3	93.0	321.6	340.1	46.4E
MAR 13	2 22 5.9	14 33 22.4	2.02515	1.51079	12.387	1.4	4.6	0.941	-18.9	73.3	321.4	341.1	45.8E
MAR 15	2 27 34.1	15 1 39.7	2.03942	1.51341	12.317	1.4	4.6	0.942	-18.4	53.7	321.3	342.2	45.2E
MAR 17	2 33 3.2	15 29 24.2	2.05361	1.51602	12.243	1.4	4.6	0.944	-17.9	34.1	321.3	343.2	44.6E
MAR 19	2 38 33.2	15 56 34.9	2.06770	1.51863	12.165	1.4	4.5	0.945	-17.5	14.4	321.2	344.3	44.0E
MAR 21	2 44 4.1	16 23 10.9	2.08171	1.52124	12.085	1.4	4.5	0.946	-17.0	354.8	321.2	345.3	43.4E
MAR 23	2 49 35.8	16 49 11.4	2.09562	1.52384	12.002	1.4	4.5	0.948	-16.5	335.2	321.2	346.4	42.8E
MAR 25	2 55 8.5	17 14 35.4	2.10944	1.52644	11.919	1.4	4.4	0.949	-16.0	315.6	321.2	347.4	42.2E
MAR 27	3 0 42.0	17 39 22.0	2.12316	1.52903	11.835	1.4	4.4	0.951	-15.5	296.0	321.3	348.5	41.7E
MAR 29	3 6 16.4	18 3 30.3	2.13678	1.53162	11.750	1.5	4.4	0.952	-15.0	276.5	321.4	349.5	41.1E
MAR 31	3 11 51.7	18 26 59.6	2.15030	1.53420	11.665	1.5	4.4	0.953	-14.4	256.9	321.5	350.5	40.5E
APR 2	3 17 27.9	18 49 49.4	2.16373	1.53678	11.577	1.5	4.3	0.954	-13.9	237.3	321.6	351.6	39.9E
APR 4	3 23 5.0	19 11 59.1	2.17705	1.53934	11.485	1.5	4.3	0.956	-13.4	217.8	321.7	352.6	39.3E
APR 6	3 28 43.1	19 33 28.1	2.19026	1.54190	11.389	1.5	4.3	0.957	-12.8	198.2	321.9	353.6	38.7E
APR 8	3 34 22.0	19 54 15.5	2.20335	1.54444	11.288	1.5	4.3	0.958	-12.3	178.7	322.1	354.6	38.1E
APR 10	3 40 1.8	20 14 20.7	2.21633	1.54697	11.182	1.5	4.2	0.959	-11.7	159.2	322.3	355.6	37.5E
APR 12	3 45 42.5	20 33 43.1	2.22918	1.54950	11.072	1.5	4.2	0.961	-11.2	139.7	322.6	356.7	36.9E
APR 14	3 51 24.0	20 52 22.0	2.24191	1.55201	10.958	1.5	4.2	0.962	-10.6	120.1	322.8	357.7	36.3E
APR 16	3 57 6.3	21 10 16.8	2.25450	1.55450	10.840	1.6	4.2	0.963	-10.1	100.6	323.1	358.7	35.7E
APR 18	4 2 49.4	21 27 26.9	2.26695	1.55699	10.719	1.6	4.1	0.964	-9.5	81.1	323.4	359.7	35.1E
APR 20	4 8 33.2	21 43 51.8	2.27926	1.55946	10.596	1.6	4.1	0.965	-8.9	61.7	323.7	360.7	34.5E
APR 22	4 14 17.6	21 59 31.0	2.29143	1.56191	10.472	1.6	4.1	0.967	-8.4	42.2	324.1	361.7	33.9E
APR 24	4 20 2.6	22 14 23.7	2.30345	1.56435	10.348	1.6	4.1	0.968	-7.8	22.7	324.5	362.7	33.3E
APR 26	4 25 48.2	22 28 29.6	2.31534	1.56677	10.224	1.6	4.0	0.969	-7.2	3.2	324.8	363.7	32.7E
APR 28	4 31 34.3	22 41 48.2	2.32707	1.56917	10.100	1.6	4.0	0.970	-6.6	343.7	325.2	364.7	32.1E
APR 30	4 37 20.9	22 54 19.5	2.33867	1.57156	9.974	1.6	4.0	0.971	-6.0	324.3	325.7	365.7	31.5E
MAY 2	4 43 7.9	23 6 3.1	2.35011	1.57392	9.844	1.6	4.0	0.972	-5.5	304.8	326.1	366.7	31.0E
MAY 4	4 48 55.4	23 16 58.7	2.36141	1.57627	9.711	1.6	4.0	0.973	-4.9	285.4	326.6	367.7	30.4E
MAY 6	4 54 43.2	23 27 6.2	2.37255	1.57860	9.574	1.6	3.9	0.974	-4.3	265.9	327.1	368.7	29.8E
MAY 8	5 0 31.3	23 36 25.1	2.38352	1.58091	9.432	1.7	3.9	0.975	-3.7	246.5	327.5	369.7	29.2E
MAY 10	5 6 19.7	23 44 55.3	2.39434	1.58319	9.286	1.7	3.9	0.976	-3.1	227.0	328.1	370.7	28.6E
MAY 12	5 12 8.3	23 52 36.7	2.40498	1.58546	9.136	1.7	3.9	0.977	-2.5	207.6	328.6	371.7	28.0E
MAY 14	5 17 57.0	23 59 29.0	2.41544	1.58770	8.983	1.7	3.9	0.978	-1.9	188.2	329.1	372.7	27.4E
MAY 16	5 23 45.8	24 5 32.3	2.42573	1.58992	8.827	1.7	3.9	0.979	-1.3	168.7	329.7	373.7	26.8E
MAY 18	5 29 34.6	24 10 46.4	2.43583	1.59212	8.668	1.7	3.8	0.980	-0.8	149.3	330.3	374.7	26.2E
MAY 20	5 35 23.2	24 15 11.4	2.44575	1.59429	8.509	1.7	3.8	0.981	-0.2	129.9	330.8	375.7	25.6E
MAY 22	5 41 11.6	24 18 47.1	2.45549	1.59644	8.350	1.7	3.8	0.982	0.4	110.5	331.4	376.7	25.0E
MAY 24	5 46 59.8	24 21 33.5	2.46504	1.59856	8.191	1.7	3.8	0.983	1.0	91.0	332.1	377.7	24.4E
MAY 26	5 52 47.6	24 23 30.9	2.47441	1.60066	8.033	1.7	3.8	0.983	1.6	71.6	332.7	378.7	23.8E
MAY 28	5 58 35.1	24 24 39.4	2.48360	1.60273	7.873	1.7	3.8	0.984	2.2	52.2	333.3	379.7	23.2E
MAY 30	6 4 22.2	24 24 59.4	2.49260	1.60477	7.711	1.7	3.8	0.985	2.8	32.8	334.0	380.7	22.6E
JUN 1	6 10 8.9	24 24 31.0	2.50142	1.60679	7.546	1.7	3.7	0.986	3.3	13.4	334.6	381.7	22.0E
JUN 3	6 15 54.9	24 23 14.4	2.51004	1.60878	7.378	1.7	3.7	0.987	3.9	353.9	335.3	382.7	21.4E
JUN 5	6 21 40.4	24 21 9.9	2.51846	1.61074	7.205	1.7	3.7	0.987	4.5	334.5	336.0	383.7	20.8E
JUN 7	6 27 25.3	24 18 17.7	2.52668	1.61268	7.029	1.7	3.7	0.988	5.0	315.1	336.7	384.7	20.2E
JUN 9	6 33 9.5	24 14 38.2	2.53470	1.61458	6.849	1.7	3.7	0.989	5.6	295.7	337.4	385.7	19.6E
JUN 11	6												

2002 MARS

Geocentric Planetary Ephemeris

2002 MARS

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	7 35 11.7	22 44 31.0	2.60865	1.63353	4.777	1.8	3.6	0.995	11.6	82.0	345.6	34.8	12.9E		
JUL 3	7 40 43.1	22 32 1.5	2.61405	1.63506	4.580	1.8	3.6	0.996	12.1	62.6	346.3	35.7	12.3E		
JUL 5	7 46 13.2	22 18 51.5	2.61923	1.63655	4.379	1.8	3.6	0.996	12.6	43.1	347.1	36.6	11.7E		
JUL 7	7 51 42.1	22 5 1.8	2.62417	1.63802	4.175	1.8	3.6	0.996	13.1	23.7	347.9	37.5	11.1E		
JUL 9	7 57 9.6	21 50 33.0	2.62887	1.63944	3.967	1.8	3.6	0.997	13.6	4.3	348.7	38.4	10.4E		
JUL 11	8 2 35.8	21 35 26.0	2.63333	1.64084	3.757	1.8	3.6	0.997	14.1	344.8	349.5	39.3	9.8E		
JUL 13	8 8 0.5	21 19 41.5	2.63755	1.64219	3.545	1.8	3.6	0.998	14.5	325.3	350.3	40.2	9.2E		
JUL 15	8 13 23.9	21 3 20.2	2.64152	1.64352	3.332	1.8	3.5	0.998	15.0	305.9	351.1	41.1	8.6E		
JUL 17	8 18 45.7	20 46 22.8	2.64525	1.64480	3.120	1.8	3.5	0.998	15.5	286.4	351.9	42.0	8.0E		
JUL 19	8 24 6.1	20 28 50.1	2.64873	1.64606	2.909	1.7	3.5	0.998	15.9	266.9	352.7	42.9	7.4E		
JUL 21	8 29 25.1	20 10 42.9	2.65197	1.64727	2.700	1.7	3.5	0.999	16.4	247.5	353.5	43.8	6.7E		
JUL 23	8 34 42.6	19 52 2.0	2.65497	1.64845	2.490	1.7	3.5	0.999	16.8	228.0	354.3	44.7	6.1E		
JUL 25	8 39 58.7	19 32 48.3	2.65773	1.64959	2.280	1.7	3.5	0.999	17.3	208.5	355.2	45.6	5.5E		
JUL 27	8 45 13.3	19 13 2.4	2.66024	1.65070	2.068	1.7	3.5	0.999	17.7	189.0	356.0	46.5	4.9E		
JUL 29	8 50 26.5	18 52 45.1	2.66250	1.65177	1.855	1.7	3.5	0.999	18.1	169.5	356.8	47.3	4.3E		
JUL 31	8 55 38.3	18 31 57.1	2.66452	1.65280	1.638	1.7	3.5	1.000	18.5	150.0	357.6	48.2	3.7E		
AUG 2	9 0 48.7	18 10 39.0	2.66629	1.65380	1.419	1.7	3.5	1.000	18.9	130.5	358.4	49.1	3.1E		
AUG 4	9 5 57.7	17 48 51.7	2.66780	1.65475	1.197	1.7	3.5	1.000	19.3	111.0	359.2	50.0	2.5E		
AUG 6	9 11 5.4	17 26 35.9	2.66905	1.65567	0.972	1.7	3.5	1.000	19.7	91.5	0.1	50.9	2.0E		
AUG 8	9 16 11.8	17 3 52.6	2.67005	1.65656	0.744	1.7	3.5	1.000	20.0	72.0	0.9	51.8	1.5E		
AUG 10	9 21 16.8	16 40 42.5	2.67077	1.65740	0.515	1.7	3.5	1.000	20.4	52.5	1.7	52.7	1.2E		
AUG 12	9 26 20.5	16 17 6.6	2.67124	1.65821	0.285	1.7	3.5	1.000	20.7	32.9	2.5	53.5	1.2E		
AUG 14	9 31 22.9	15 53 5.5	2.67143	1.65898	0.057	1.7	3.5	1.000	21.1	13.4	3.3	54.4	1.5W		
AUG 16	9 36 23.9	15 28 40.0	2.67137	1.65970	-0.170	1.7	3.5	1.000	21.4	353.9	4.2	55.3	2.0W		
AUG 18	9 41 23.7	15 3 51.1	2.67104	1.66040	-0.396	1.7	3.5	1.000	21.7	334.3	5.0	56.2	2.6W		
AUG 20	9 46 22.2	14 38 39.6	2.67046	1.66105	-0.620	1.7	3.5	1.000	22.0	314.8	5.8	57.1	3.2W		
AUG 22	9 51 19.5	14 13 6.2	2.66961	1.66166	-0.844	1.8	3.5	1.000	22.3	295.2	6.6	57.9	3.8W		
AUG 24	9 56 15.7	13 47 11.6	2.66851	1.66223	-1.069	1.8	3.5	0.999	22.6	275.7	7.4	58.8	4.4W		
AUG 26	10 1 10.7	13 20 56.6	2.66714	1.66277	-1.295	1.8	3.5	0.999	22.9	256.1	8.2	59.7	5.0W		
AUG 28	10 6 4.7	12 54 21.9	2.66552	1.66327	-1.522	1.8	3.5	0.999	23.1	236.6	9.0	60.6	5.7W		
AUG 30	10 10 57.6	12 27 28.0	2.66362	1.66372	-1.752	1.8	3.5	0.999	23.4	217.0	9.8	61.4	6.3W		
SEP 1	10 15 49.6	12 0 15.8	2.66147	1.66414	-1.984	1.8	3.5	0.999	23.6	197.4	10.6	62.3	7.0W		
SEP 3	10 20 40.6	11 32 46.0	2.65904	1.66452	-2.218	1.8	3.5	0.998	23.8	177.8	11.4	63.2	7.6W		
SEP 5	10 25 30.7	11 4 59.5	2.65634	1.66486	-2.454	1.8	3.5	0.998	24.1	158.2	12.2	64.1	8.3W		
SEP 7	10 30 19.9	10 36 57.1	2.65337	1.66515	-2.693	1.8	3.5	0.998	24.3	138.7	13.0	64.9	8.9W		
SEP 9	10 35 8.2	10 8 39.5	2.65012	1.66541	-2.931	1.8	3.5	0.997	24.4	119.1	13.8	65.8	9.6W		
SEP 11	10 39 55.6	9 40 7.6	2.64660	1.66563	-3.167	1.8	3.5	0.997	24.6	99.5	14.6	66.7	10.3W		
SEP 13	10 44 42.3	9 11 22.1	2.64281	1.66581	-3.401	1.8	3.5	0.997	24.8	79.9	15.4	67.6	10.9W		
SEP 15	10 49 28.2	8 42 23.9	2.63875	1.66595	-3.633	1.8	3.5	0.996	24.9	60.3	16.1	68.4	11.6W		
SEP 17	10 54 13.4	8 13 13.7	2.63442	1.66605	-3.863	1.8	3.6	0.995	25.0	40.7	16.9	69.3	12.3W		
SEP 19	10 58 57.9	7 43 52.4	2.62983	1.66611	-4.091	1.8	3.6	0.995	25.2	21.1	17.7	70.2	13.0W		
SEP 21	11 3 41.8	7 14 20.5	2.62497	1.66613	-4.319	1.8	3.6	0.995	25.3	1.5	18.4	71.1	13.6W		
SEP 23	11 8 25.2	6 44 38.7	2.61985	1.66611	-4.547	1.8	3.6	0.994	25.4	341.8	19.2	71.9	14.3W		
SEP 25	11 13 8.0	6 14 47.7	2.61446	1.66605	-4.776	1.8	3.6	0.994	25.4	322.2	19.9	72.8	15.0W		
SEP 27	11 17 50.5	5 44 48.0	2.60881	1.66595	-5.006	1.8	3.6	0.993	25.5	302.6	20.6	73.7	15.7W		
SEP 29	11 22 32.5	5 14 40.3	2.60290	1.66582	-5.237	1.8	3.6	0.993	25.6	283.0	21.3	74.5	16.4W		
OCT 1	11 27 14.2	4 44 25.5	2.59672	1.66564	-5.470	1.8	3.6	0.992	25.6	263.4	22.0	75.4	17.1W		
OCT 3	11 31 55.6	4 14 4.3	2.59026	1.66542	-5.704	1.8	3.6	0.992	25.6	243.8	22.8	76.3	17.8W		
OCT 5	11 36 36.7	3 43 37.5	2.58354	1.66516	-5.939	1.8	3.6	0.991	25.6	224.2	23.4	77.2	18.5W		
OCT 7	11 41 17.6	3 13 5.8	2.57654	1.66486	-6.174	1.8	3.6	0.990	25.6	204.6	24.1	78.0	19.2W		
OCT 9	11 45 58.2	2 42 30.1	2.56928	1.66452	-6.406	1.8	3.6	0.990	25.6	184.9	24.8	78.9	19.8W		
OCT 11	11 50 38.8	2 11 51.1	2.56175	1.66415	-6.636	1.8	3.7	0.989	25.6	165.3	25.5	79.8	20.6W		
OCT 13	11 55 19.2	1 41 9.7	2.55395	1.66373	-6.862	1.8	3.7	0.988	25.5	145.7	26.1	80.7	21.3W		
OCT 15	11 59 59.5	1 10 26.7	2.54590	1.66328	-7.084	1.8	3.7	0.987	25.5	126.1	26.7	81.5	22.0W		
OCT 17	12 4 39.8	0 39 42.7	2.53759	1.66278	-7.305	1.8	3.7	0.986	25.4	106.5	27.4	82.4	22.7W		
OCT 19	12 9 20.2	0 8 58.5	2.52902	1.66225	-7.523	1.8	3.7	0.986	25.3	86.9	28.0	83.3	23.4W		
OCT 21	12 14 0.6	0 21 45.3	2.52021	1.66167	-7.741	1.8	3.7	0.985	25.2	67.3	28.6	84.2	24.1W		
OCT 23	12 18 41.2	0 52 28.2	2.51114	1.66106	-7.958	1.8	3.7	0.984	25.1	47.7	29.2	85.0	24.8W		
OCT 25	12 23 22.0	-1 23 9.4	2.50182	1.66041	-8.174	1.8	3.7	0.983	24.9	28.1	29.7	85.9	25.5W		
OCT 27	12 28 3.1	-1 53 48.3	2.49226	1.65972	-8.391	1.8	3.8	0.982	24.8	8.5	30.3	86.8	26.2W		
OCT 29	12 32 44.5	-2 24 24.1	2.48244	1.65899	-8.608	1.8	3.8	0.981	24.6	348.9	30.8	87.7	26.9W		
OCT 31	12 37 26.3	-2 54 56.1	2.47237	1.65822	-8.825	1.8	3.8	0.980	24.5	329.3	31.3	88.6	27.7W		
NOV 2	12 42 8.4	-3 25 23.3	2.46205	1.65742	-9.043	1.8	3.8	0.979	24.3	309.7	31.9	89.4	28.4W		
NOV 4	12 46 50.9	-3 55 45.1	2.45148	1.65657	-9.259	1.8	3.8	0.978	24.1	290.1	32.3	90.3	29.1W		
NOV 6	12 51 34.0	-4 26 0.7	2.44066	1.65569	-9.473	1.8	3.8	0.977	23.9	270.6	32.8	91.2	29.8W		
NOV 8	12 56 17.5	-4 56 9.1	2.42960	1.65477	-9.683	1.8	3.9	0.976	23.7	251.0	33.3	92.1	30.6W		
NOV 10	13 1 1.5	-5 26 9.5	2.41830	1.65381	-9.888	1.8	3.9	0.975	23.4	231.4	33.7	93.0	31.3W		
NOV 12	13 5 46.1	-5 56 1.1	2.40676	1.65282	-10.088	1.8	3.9	0.974	23.2	211.9	34.1	93.9	32.0W		
NOV 14	13 10 31.3	-6 25 43.1	2.39499	1.65178	-10.285	1.8	3.9	0.973	22.9	192.3	34.6	94.8	32.7W		
NOV 16	13 15 17.1	-6 55 14.8	2.38300	1.65071	-10.479	1.8	3.9	0.972	22.7	172.8	34.9	95.6	33.5W		
NOV 18	13 20 3.6	-7 24 35.5	2.37078	1.64961	-10.670	1.8	4.0	0.971	22.4	153.2	35.3	96.5	34.2W		
NOV 20	13 24 50.9	-7 53 44.6	2.35835	1.64846	-10.859	1.7	4.0	0.970	22.1	133.7	35.7	97.4	34.9W		
NOV 22	13 29 39.0	-8 22 41.5	2.34570	1.64728	-11.046	1.7	4.0	0.968	21.8	114.1	36.0	98.3	35.7W		
NOV 24	13 34 28.0	-8 51 25.3	2.33283	1.64607	-11.232	1.7	4.0	0.967	21.5	94.6	36.3	99.2	36.4W		
NOV 26	13 39 17.9	-9 19 55.3	2.31975	1.64481	-11.417	1.7	4.0	0.966	21.1	75.1	36.6	100.1	37.1W		
NOV 28	13 44 8.6	-9 48 10.7	2.30646	1.64352	-11.601	1.7	4.1	0.965	20.8	55.6	36.9	101.0	37.9W		
NOV 30	13 49 0.4	-10 16 10.7	2.29295	1.64220	-11.785	1.7	4.1	0.964	20.4	36.1	37.1	101.9	38.6W		
DEC 2	13 53 53.1	-10 43 54.3	2.27924	1.64084	-11.967	1.7	4.1	0.962	20.1	16.6	37.4	102.8	39.4W		
DEC 4	13 58 46.8	-11 11 20.8	2.26531	1.63945	-12.145	1.7	4.1	0.961	19.7	357.1	37.6	103.7	40.1W		
DEC 6	14 3 41.5	-11 38 29.3	2.25118	1.63802	-12.319	1.7	4.2	0.960	19.3	337.6	37.8	104.6	40.9W		
DEC 8	14 8 37.2	-12 5 18.8	2.23685	1.63656	-12.486	1.7	4.2								

Date (0 DT)	RA (h m s)	[Mean] Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 1	15 9 14.8	-16-57-54.4	2.05143	1.61643	-14.201	1.5	4.6	0.941	13.7	84.7	38.4	116.5	50.6W
JAN 3	15 14 25.9	-17-19-27.9	2.03495	1.61456	-14.323	1.5	4.6	0.940	13.2	65.3	38.3	117.4	51.3W
JAN 5	15 19 38.1	-17-40-31.5	2.01834	1.61265	-14.440	1.5	4.6	0.938	12.7	45.9	38.2	118.3	52.1W
JAN 7	15 24 51.6	-18 -1 -4.3	2.00160	1.61071	-14.550	1.5	4.7	0.937	12.2	26.5	38.0	119.3	52.8W
JAN 9	15 30 6.2	-18-21 -5.7	1.98473	1.60874	-14.653	1.5	4.7	0.935	11.7	7.1	37.9	120.2	53.6W
JAN 11	15 35 22.0	-18-40-35.0	1.96775	1.60675	-14.752	1.5	4.8	0.934	11.2	347.7	37.7	121.2	54.3W
JAN 13	15 40 38.9	-18-59-31.6	1.95065	1.60473	-14.845	1.4	4.8	0.932	10.7	328.3	37.5	122.1	55.1W
JAN 15	15 45 57.1	-19-17-55.0	1.93345	1.60268	-14.933	1.4	4.8	0.931	10.2	309.0	37.3	123.0	55.8W
JAN 17	15 51 16.4	-19-35-44.4	1.91616	1.60060	-15.018	1.4	4.9	0.929	9.6	289.6	37.0	124.0	56.6W
JAN 19	15 56 36.8	-19-52-59.5	1.89876	1.59850	-15.100	1.4	4.9	0.928	9.1	270.2	36.8	124.9	57.3W
JAN 21	16 1 58.4	-20 -9-39.6	1.88127	1.59637	-15.179	1.4	5.0	0.926	8.6	250.8	36.5	125.9	58.1W
JAN 23	16 7 21.1	-20-25-43.9	1.86370	1.59422	-15.256	1.4	5.0	0.925	8.0	231.5	36.2	126.8	58.8W
JAN 25	16 12 44.9	-20-41-11.9	1.84603	1.59205	-15.332	1.3	5.1	0.923	7.5	212.1	35.9	127.8	59.5W
JAN 27	16 18 9.8	-20 56 3.0	1.82828	1.58984	-15.404	1.3	5.1	0.922	7.0	192.7	35.6	128.7	60.3W
JAN 29	16 23 35.6	-21-10-16.6	1.81045	1.58762	-15.472	1.3	5.2	0.920	6.4	173.4	35.2	129.7	61.0W
JAN 31	16 29 2.4	-21-23-52.2	1.79254	1.58537	-15.535	1.3	5.2	0.918	5.9	154.0	34.9	130.7	61.8W
FEB 2	16 34 30.0	-21-36-49.2	1.77456	1.58310	-15.592	1.3	5.3	0.917	5.3	134.7	34.5	131.6	62.5W
FEB 4	16 39 58.4	-21-49 -7.1	1.75652	1.58081	-15.643	1.2	5.3	0.915	4.8	115.3	34.1	132.6	63.3W
FEB 6	16 45 27.5	-22 0-45.3	1.73842	1.57850	-15.687	1.2	5.4	0.914	4.3	96.0	33.6	133.6	64.0W
FEB 8	16 50 57.4	-22-11-43.6	1.72028	1.57617	-15.725	1.2	5.4	0.912	3.7	76.6	33.2	134.5	64.7W
FEB 10	16 56 27.9	-22-22 -1.7	1.70210	1.57382	-15.758	1.2	5.5	0.911	3.2	57.3	32.8	135.5	65.5W
FEB 12	17 1 59.0	-22-31-39.3	1.68388	1.57144	-15.785	1.2	5.6	0.909	2.6	38.0	32.3	136.5	66.2W
FEB 14	17 7 30.7	-22-40-36.3	1.66563	1.56905	-15.809	1.1	5.6	0.908	2.1	18.6	31.8	137.5	67.0W
FEB 16	17 13 2.9	-22-48-52.5	1.64736	1.56664	-15.828	1.1	5.7	0.906	1.5	359.3	31.3	138.5	67.7W
FEB 18	17 18 35.6	-22-56-27.7	1.62907	1.56422	-15.846	1.1	5.8	0.905	1.0	339.9	30.8	139.5	68.4W
FEB 20	17 24 8.7	-23 -3-21.5	1.61075	1.56178	-15.862	1.1	5.8	0.903	0.4	320.6	30.3	140.4	69.2W
FEB 22	17 29 42.2	-23 -9-33.8	1.59242	1.55932	-15.876	1.0	5.9	0.902	-0.1	301.3	29.7	141.4	69.9W
FEB 24	17 35 16.0	-23-15 -4.5	1.57408	1.55684	-15.888	1.0	6.0	0.900	-0.7	281.9	29.2	142.4	70.6W
FEB 26	17 40 49.9	-23 19-53.6	1.55572	1.55435	-15.896	1.0	6.0	0.899	-1.2	262.6	28.6	143.4	71.4W
FEB 28	17 46 24.0	-23-24 -1.1	1.53736	1.55185	-15.899	1.0	6.1	0.897	-1.8	243.2	28.0	144.4	72.1W
MAR 2	17 51 58.0	-23-27-26.9	1.51899	1.54934	-15.897	0.9	6.2	0.896	-2.3	223.9	27.4	145.4	72.8W
MAR 4	17 57 31.9	-23-30-11.0	1.50063	1.54681	-15.889	0.9	6.2	0.894	-2.9	204.6	26.8	146.5	73.6W
MAR 6	18 3 5.6	-23-32-13.6	1.48229	1.54427	-15.876	0.9	6.3	0.893	-3.4	185.2	26.2	147.5	74.3W
MAR 8	18 8 39.0	-23-33-34.9	1.46396	1.54172	-15.856	0.9	6.4	0.892	-3.9	165.9	25.6	148.5	75.0W
MAR 10	18 14 12.1	-23-34-15.1	1.44566	1.53916	-15.831	0.8	6.5	0.890	-4.5	146.6	24.9	149.5	75.7W
MAR 12	18 19 44.8	-23-34-14.7	1.42739	1.53659	-15.802	0.8	6.6	0.889	-5.0	127.2	24.3	150.5	76.5W
MAR 14	18 25 17.0	-23 33-33.9	1.40916	1.53401	-15.768	0.8	6.6	0.888	-5.5	107.9	23.6	151.6	77.2W
MAR 16	18 30 48.7	-23-32-13.2	1.39096	1.53142	-15.731	0.8	6.7	0.886	-6.1	88.5	22.9	152.6	77.9W
MAR 18	18 36 19.8	-23-30-13.0	1.37281	1.52883	-15.692	0.7	6.8	0.885	-6.6	69.2	22.3	153.6	78.7W
MAR 20	18 41 50.3	-23-27-33.5	1.35471	1.52623	-15.652	0.7	6.9	0.884	-7.1	49.9	21.6	154.7	79.4W
MAR 22	18 47 20.0	-23-24-15.1	1.33666	1.52362	-15.611	0.7	7.0	0.882	-7.6	30.5	20.9	155.7	80.1W
MAR 24	18 52 49.0	-23-20-18.5	1.31865	1.52101	-15.569	0.6	7.1	0.881	-8.1	11.2	20.2	156.8	80.8W
MAR 26	18 58 17.0	-23 15-44.4	1.30069	1.51840	-15.525	0.6	7.2	0.880	-8.6	351.8	19.5	157.8	81.6W
MAR 28	19 3 44.0	-23-10-33.2	1.28278	1.51578	-15.476	0.6	7.3	0.879	-9.1	332.5	18.8	158.9	82.3W
MAR 30	19 9 9.9	-23 -4-45.8	1.26494	1.51317	-15.423	0.5	7.4	0.878	-9.6	313.1	18.0	159.9	83.0W
APR 1	19 14 34.5	-22-58-22.9	1.24715	1.51055	-15.365	0.5	7.5	0.877	-10.1	293.8	17.3	161.0	83.7W
APR 3	19 19 57.8	-22-51-25.1	1.22944	1.50793	-15.303	0.5	7.6	0.876	-10.5	274.4	16.6	162.0	84.5W
APR 5	19 25 19.7	-22-43-53.5	1.21180	1.50531	-15.235	0.4	7.7	0.875	-11.0	255.1	15.8	163.1	85.2W
APR 7	19 30 40.1	-22-35-48.9	1.19425	1.50269	-15.163	0.4	7.8	0.874	-11.4	235.7	15.1	164.2	85.9W
APR 9	19 35 59.0	-22-27-12.4	1.17678	1.50008	-15.086	0.4	8.0	0.873	-11.9	216.4	14.3	165.3	86.7W
APR 11	19 41 16.2	-22-18 -4.9	1.15940	1.49747	-15.006	0.3	8.1	0.872	-12.3	197.0	13.6	166.3	87.4W
APR 13	19 46 31.8	-22 -8-27.4	1.14211	1.49487	-14.923	0.3	8.2	0.871	-12.8	177.6	12.8	167.4	88.1W
APR 15	19 51 45.7	-21 58-20.9	1.12492	1.49227	-14.839	0.3	8.3	0.870	-13.2	158.3	12.1	168.5	88.9W
APR 17	19 56 57.9	-21-47-46.2	1.10783	1.48967	-14.754	0.2	8.5	0.869	-13.6	138.9	11.3	169.6	89.6W
APR 19	20 2 8.2	-21 36-44.3	1.09084	1.48709	-14.670	0.2	8.6	0.869	-14.0	119.6	10.6	170.7	90.3W
APR 21	20 7 16.7	-21-25-16.4	1.07394	1.48451	-14.585	0.2	8.7	0.868	-14.4	100.2	9.8	171.8	91.1W
APR 23	20 12 23.2	-21-13-24.0	1.05714	1.48194	-14.499	0.1	8.9	0.868	-14.8	80.8	9.0	172.9	91.8W
APR 25	20 17 27.6	-21 -1 -8.3	1.04044	1.47938	-14.411	0.1	9.0	0.867	-15.2	61.5	8.3	174.0	92.6W
APR 27	20 22 29.7	-20-48-30.7	1.02385	1.47684	-14.319	0.1	9.1	0.866	-15.6	42.1	7.5	175.1	93.3W
APR 29	20 27 29.4	-20-35-32.6	1.00737	1.47430	-14.223	0.0	9.3	0.866	-15.9	22.8	6.8	176.2	94.1W
MAY 1	20 32 26.8	-20-22-15.4	0.99100	1.47178	-14.123	0.0	9.5	0.866	-16.3	3.4	6.0	177.3	94.9W
MAY 3	20 37 21.6	-20 -8-40.7	0.97474	1.46927	-14.018	-0.1	9.6	0.865	-16.6	344.0	5.2	178.4	95.6W
MAY 5	20 42 13.8	-19-54-50.0	0.95861	1.46678	-13.910	-0.1	9.8	0.865	-16.9	324.7	4.5	179.6	96.4W
MAY 7	20 47 3.3	-19-40-44.8	0.94261	1.46431	-13.798	-0.1	9.9	0.865	-17.3	305.3	3.7	180.7	97.2W
MAY 9	20 51 50.1	-19-26-26.9	0.92674	1.46185	-13.683	-0.2	10.1	0.865	-17.6	286.0	3.0	181.8	98.0W
MAY 11	20 56 34.0	-19-11-57.6	0.91100	1.45941	-13.566	-0.2	10.3	0.865	-17.9	266.7	2.2	183.0	98.8W
MAY 13	21 1 15.1	-18-57-18.3	0.89540	1.45699	-13.447	-0.3	10.5	0.865	-18.1	247.3	1.5	184.1	99.6W
MAY 15	21 5 53.3	-18-42-30.6	0.87993	1.45459	-13.328	-0.3	10.6	0.865	-18.4	228.0	0.8	185.3	100.4W
MAY 17	21 10 28.5	-18-27-35.9	0.86460	1.45221	-13.210	-0.3	10.8	0.865	-18.7	208.7	0.0	186.4	101.2W
MAY 19	21 15 0.6	-18-12-36.0	0.84941	1.44986	-13.093	-0.4	11.0	0.865	-18.9	189.3	359.3	187.5	102.0W
MAY 21	21 19 29.4	-17-57-33.0	0.83436	1.44752	-12.974	-0.4	11.2	0.866	-19.1	170.0	358.6	188.7	102.8W
MAY 23	21 23 54.8	-17-42-28.9	0.81944	1.44522	-12.854	-0.5	11.4	0.866	-19.4	150.7	357.9	189.9	103.7W
MAY 25	21 28 16.6	-17-27-25.7	0.80466	1.44293	-12.731	-0.5	11.6	0.867	-19.6	131.4	357.2	191.0	104.5W
MAY 27	21 32 34.6	-17 12-25.5	0.79003	1.44068	-12.604	-0.6	11.9	0.868	-19.7	112.1	356.5	192.2	105.4W
MAY 29	21 36 48.9	-16-57-30.5	0.77555	1.43845	-12.473	-0.6	12.1	0.868	-19.9	92.8	355.8	193.4	106.3W
MAY 31	21 40 58.8	-16-42-42.9	0.76122	1.43625	-12.338	-0.6	12.3	0.869	-20.1	73.6	355.1	194.5	107.2W
JUN 2	21 45 4.7	-16-28 -4.8	0.74705	1.43408	-12.198	-0.7	12.5	0.870	-20.3	54.3	354.5	195.7	108.1W
JUN 4	21 49 6.2	-16-13-38.4	0.73304	1.43194	-12.054	-0.7	12.8	0.871	-20.4	35.1	353.8	196.9	109.0W
JUN 6	21 53 3.1	-15-59-26.0	0.71920	1.42983	-11.906	-0.8	13.0	0.872	-20.5	15.9	353.2	198.1	109.9W
JUN 8	21 56 55.4	-15-45-29.4	0.70553	1.42776	-11.755	-0.8	13.3	0.874	-20.6				

Date (0 DT)	RA (h m s)	[Mean] (d)	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	22 36	1.1	-13-32-36.1	0.55593	1.40575	-9.726	-1.5	16.9	0.900	-21.1	128.0	346.4	213.8	124.1W
JUL 4	22 38	30.9	-13-25-42.2	0.54482	1.40419	-9.518	-1.5	17.2	0.904	-21.1	109.1	346.0	215.0	125.4W
JUL 6	22 40	52.1	-13-19-38.0	0.53395	1.40267	-9.303	-1.6	17.5	0.907	-21.0	90.3	345.7	216.2	126.7W
JUL 8	22 43	4.5	-13-14-25.3	0.52333	1.40119	-9.082	-1.6	17.9	0.910	-21.0	71.5	345.3	217.4	128.0W
JUL 10	22 45	7.8	-13-10-5.7	0.51297	1.39977	-8.854	-1.7	18.3	0.914	-20.9	52.8	345.0	218.7	129.4W
JUL 12	22 47	1.8	-13-6-40.7	0.50287	1.39839	-8.621	-1.8	18.6	0.918	-20.8	34.1	344.7	219.9	130.9W
JUL 14	22 48	45.9	-13-4-12.2	0.49305	1.39706	-8.382	-1.8	19.0	0.922	-20.8	15.5	344.5	221.2	132.4W
JUL 16	22 50	19.9	-13-2-41.9	0.48351	1.39578	-8.136	-1.9	19.4	0.926	-20.7	356.9	344.2	222.4	133.9W
JUL 18	22 51	43.2	-13-2-11.7	0.47426	1.39455	-7.880	-1.9	19.8	0.930	-20.6	338.3	344.0	223.6	135.4W
JUL 20	22 52	55.4	-13-2-42.9	0.46531	1.39337	-7.613	-2.0	20.1	0.934	-20.5	319.8	343.9	224.9	137.1W
JUL 22	22 53	56.1	-13-4-16.4	0.45668	1.39224	-7.334	-2.0	20.5	0.938	-20.4	301.4	343.7	226.1	138.7W
JUL 24	22 54	45.1	-13-6-52.6	0.44837	1.39116	-7.041	-2.1	20.9	0.943	-20.3	283.0	343.6	227.4	140.4W
JUL 26	22 55	21.9	-13-10-31.5	0.44041	1.39014	-6.734	-2.2	21.3	0.947	-20.2	264.7	343.5	228.6	142.2W
JUL 28	22 55	46.4	-13-15-12.2	0.43282	1.38916	-6.413	-2.2	21.6	0.951	-20.1	246.4	343.5	229.9	144.0W
JUL 30	22 55	58.4	-13-20-53.1	0.42560	1.38824	-6.076	-2.3	22.0	0.956	-20.0	228.2	343.5	231.2	145.8W
AUG 1	22 55	57.9	-13-27-31.5	0.41879	1.38738	-5.724	-2.3	22.4	0.960	-19.9	210.0	343.5	232.4	147.7W
AUG 3	22 55	44.8	-13-35-4.0	0.41238	1.38657	-5.359	-2.4	22.7	0.965	-19.8	191.9	343.5	233.7	149.7W
AUG 5	22 55	19.4	-13-43-26.1	0.40641	1.38581	-4.982	-2.4	23.0	0.969	-19.7	173.8	343.6	234.9	151.7W
AUG 7	22 54	42.0	-13-52-32.7	0.40088	1.38511	-4.593	-2.5	23.4	0.973	-19.6	155.8	343.7	236.2	153.7W
AUG 9	22 53	52.8	-14-2-18.4	0.39580	1.38447	-4.193	-2.5	23.7	0.977	-19.5	137.9	343.8	237.5	155.8W
AUG 11	22 52	52.2	-14-12-37.4	0.39119	1.38388	-3.783	-2.6	23.9	0.981	-19.4	120.0	344.0	238.7	157.9W
AUG 13	22 51	40.7	-14-23-23.6	0.38707	1.38335	-3.362	-2.6	24.2	0.984	-19.3	102.1	344.2	240.0	160.0W
AUG 15	22 50	18.9	-14-34-30.2	0.38343	1.38288	-2.929	-2.7	24.4	0.987	-19.2	84.3	344.4	241.3	162.2W
AUG 17	22 48	47.3	-14-45-49.6	0.38030	1.38246	-2.483	-2.7	24.6	0.990	-19.1	66.5	344.6	242.5	164.3W
AUG 19	22 47	6.9	-14-57-13.9	0.37770	1.38210	-2.026	-2.8	24.8	0.993	-19.1	48.8	344.9	243.8	166.4W
AUG 21	22 45	18.7	-15-8-34.4	0.37563	1.38180	-1.558	-2.8	24.9	0.995	-19.0	31.0	345.2	245.1	168.4W
AUG 23	22 43	23.8	-15-19-42.3	0.37410	1.38155	-1.080	-2.8	25.0	0.996	-18.9	13.4	345.5	246.3	170.3W
AUG 25	22 41	23.5	-15-30-28.4	0.37313	1.38136	-0.593	-2.9	25.1	0.997	-18.9	355.7	345.8	247.6	171.9W
AUG 27	22 39	19.2	-15-40-43.4	0.37273	1.38123	-0.101	-2.9	25.1	0.998	-18.8	338.0	346.1	248.9	173.0W
AUG 29	22 37	12.4	-15-50-18.3	0.37290	1.38116	0.395	-2.9	25.1	0.998	-18.8	320.4	346.4	250.1	173.4W
AUG 31	22 35	4.8	-15-59-4.2	0.37364	1.38115	0.890	-2.9	25.1	0.998	-18.8	302.7	346.7	251.4	172.9E
SEP 2	22 32	57.9	-16-6-53.1	0.37495	1.38119	1.382	-2.9	25.0	0.997	-18.8	285.0	347.1	252.7	171.7E
SEP 4	22 30	53.4	-16-13-38.2	0.37683	1.38130	1.869	-2.8	24.9	0.996	-18.8	267.4	347.4	253.9	170.0E
SEP 6	22 28	52.7	-16-19-14.1	0.37927	1.38146	2.348	-2.8	24.7	0.994	-18.8	249.7	347.7	255.2	168.1E
SEP 8	22 26	57.0	-16-23-36.7	0.38225	1.38168	2.818	-2.7	24.5	0.992	-18.8	231.9	348.0	256.5	166.1E
SEP 10	22 25	7.6	-16-26-42.9	0.38577	1.38195	3.281	-2.7	24.3	0.990	-18.8	214.2	348.3	257.8	164.0E
SEP 12	22 23	25.5	-16-28-30.8	0.38982	1.38229	3.735	-2.7	24.0	0.987	-18.9	196.4	348.5	259.0	161.8E
SEP 14	22 21	51.8	-16-28-58.9	0.39440	1.38268	4.180	-2.6	23.8	0.984	-18.9	178.5	348.8	260.3	159.7E
SEP 16	22 20	27.3	-16-28-6.6	0.39948	1.38313	4.617	-2.6	23.4	0.980	-19.0	160.7	349.0	261.6	157.5E
SEP 18	22 19	12.8	-16-25-53.9	0.40506	1.38363	5.044	-2.5	23.1	0.977	-19.1	142.7	349.2	262.8	155.4E
SEP 20	22 18	9.0	-16-22-21.3	0.41112	1.38419	5.461	-2.4	22.8	0.973	-19.2	124.8	349.3	264.1	153.3E
SEP 22	22 17	16.5	-16-17-29.8	0.41767	1.38481	5.867	-2.4	22.4	0.969	-19.3	106.7	349.4	265.3	151.3E
SEP 24	22 16	35.8	-16-11-20.7	0.42467	1.38548	6.262	-2.3	22.1	0.965	-19.5	88.7	349.5	266.6	149.3E
SEP 26	22 16	7.1	-16-3-55.3	0.43213	1.38621	6.644	-2.3	21.7	0.960	-19.6	70.5	349.6	267.9	147.3E
SEP 28	22 15	50.9	-15-55-15.4	0.44001	1.38700	7.011	-2.2	21.3	0.956	-19.8	52.3	349.6	269.1	145.4E
SEP 30	22 15	47.2	-15-45-22.9	0.44832	1.38784	7.363	-2.1	20.9	0.952	-19.9	34.1	349.6	270.4	143.5E
OCT 2	22 15	56.1	-15-34-20.5	0.45702	1.38873	7.699	-2.1	20.5	0.947	-20.1	15.8	349.6	271.6	141.7E
OCT 4	22 16	17.2	-15-22-11.1	0.46610	1.38968	8.021	-2.0	20.1	0.943	-20.3	357.4	349.5	272.9	139.9E
OCT 6	22 16	50.5	-15-8-58.0	0.47554	1.39068	8.329	-2.0	19.7	0.939	-20.5	339.0	349.4	274.2	138.1E
OCT 8	22 17	35.5	-14-54-44.2	0.48533	1.39173	8.626	-1.9	19.3	0.934	-20.7	320.5	349.3	275.4	136.4E
OCT 10	22 18	31.9	-14-39-32.7	0.49546	1.39284	8.913	-1.8	18.9	0.930	-20.9	302.0	349.1	276.7	134.8E
OCT 12	22 19	39.3	-14-23-26.4	0.50592	1.39400	9.190	-1.8	18.5	0.926	-21.1	283.4	349.0	277.9	133.2E
OCT 14	22 20	57.3	-14-6-27.8	0.51669	1.39520	9.459	-1.7	18.1	0.923	-21.3	264.8	348.7	279.2	131.6E
OCT 16	22 22	25.5	-13-48-39.5	0.52777	1.39646	9.721	-1.7	17.7	0.919	-21.5	246.1	348.5	280.4	130.1E
OCT 18	22 24	3.6	-13-30-3.5	0.53914	1.39777	9.976	-1.6	17.4	0.915	-21.8	227.4	348.2	281.6	128.6E
OCT 20	22 25	51.1	-13-10-42.1	0.55081	1.39913	10.223	-1.5	17.0	0.912	-22.0	208.6	347.9	282.9	127.1E
OCT 22	22 27	47.8	-12-50-36.9	0.56276	1.40053	10.463	-1.5	16.6	0.908	-22.2	189.8	347.6	284.1	125.7E
OCT 24	22 29	53.2	-12-29-49.5	0.57498	1.40198	10.695	-1.4	16.3	0.905	-22.4	170.9	347.2	285.3	124.3E
OCT 26	22 32	7.0	-12-8-21.3	0.58746	1.40348	10.918	-1.4	15.9	0.902	-22.7	152.0	346.9	286.6	123.0E
OCT 28	22 34	28.9	-11-46-13.6	0.60019	1.40502	11.131	-1.3	15.6	0.899	-22.9	133.1	346.5	287.8	121.7E
OCT 30	22 36	58.5	-11-23-28.0	0.61317	1.40661	11.334	-1.2	15.3	0.897	-23.1	114.1	346.0	289.0	120.4E
NOV 1	22 39	35.4	-11-0-6.6	0.62638	1.40825	11.529	-1.2	15.0	0.894	-23.3	95.1	345.6	290.3	119.1E
NOV 3	22 42	19.1	-10-36-11.1	0.63980	1.40992	11.716	-1.1	14.6	0.892	-23.6	76.0	345.2	291.5	117.9E
NOV 5	22 45	9.2	-10-11-43.3	0.65344	1.41164	11.898	-1.1	14.3	0.889	-23.8	56.9	344.7	292.7	116.7E
NOV 7	22 48	5.3	-9-46-45.0	0.66728	1.41340	12.075	-1.0	14.0	0.887	-24.0	37.8	344.2	293.9	115.5E
NOV 9	22 51	7.1	-9-21-17.7	0.68133	1.41520	12.247	-1.0	13.7	0.885	-24.2	18.6	343.7	295.1	114.4E
NOV 11	22 54	14.2	-8-55-22.9	0.69558	1.41704	12.417	-0.9	13.5	0.883	-24.4	359.5	343.2	296.3	113.3E
NOV 13	22 57	26.5	-8-29-2.0	0.71002	1.41892	12.583	-0.9	13.2	0.882	-24.6	340.2	342.7	297.5	112.1E
NOV 15	23 0	43.5	-8-2-16.4	0.72464	1.42084	12.746	-0.8	12.9	0.880	-24.7	321.0	342.1	298.7	111.1E
NOV 17	23 4	5.1	-7-35-7.2	0.73946	1.42279	12.907	-0.8	12.7	0.879	-24.9	301.7	341.6	299.9	110.0E
NOV 19	23 7	31.0	-7-7-35.4	0.75446	1.42478	13.063	-0.7	12.4	0.877	-25.1	282.4	341.0	301.1	108.9E
NOV 21	23 11	1.0	-6-39-42.0	0.76964	1.42681	13.216	-0.7	12.2	0.876	-25.2	263.1	340.5	302.3	107.9E
NOV 23	23 14	35.1	-6-11-27.5	0.78499	1.42887	13.363	-0.6	11.9	0.875	-25.4	243.7	339.9	303.5	106.9E
NOV 25	23 18	12.9	-5-42-53.0	0.80051	1.43096	13.504	-0.6	11.7	0.874	-25.5	224.4	339.3	304.7	105.9E
NOV 27	23 21	54.4	-5-13-59.4	0.81618	1.43308	13.637	-0.5	11.5	0.873	-25.6	205.0	338.7	305.9	104.9E
NOV 29	23 25	39.3	-4-44-48.2	0.83201	1.43524	13.764	-0.5	11.3	0.872	-25.7	185.6	338.2	307.1	103.9E
DEC 1	23 29	27.4	-4-15-20.6	0.84798	1.43743									

Date (0 DT)	RA (h m s)			Dec (° ' ")			Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	0 35	47.4		3 56	56.0		1.12003	1.47565	15.394	0.2	8.4	0.873	-25.6	213.6	328.5	326.5	88.9E
JAN 4	0 40	12.9		4 28	7.6		1.13785	1.47819	15.454	0.3	8.2	0.874	-25.4	194.0	328.0	327.6	88.0E
JAN 6	0 44	40.0		4 59	15.7		1.15573	1.48075	15.511	0.3	8.1	0.874	-25.3	174.4	327.6	328.7	87.2E
JAN 8	0 49	8.6		5 30	18.9		1.17368	1.48331	15.567	0.3	8.0	0.875	-25.1	154.8	327.1	329.8	86.4E
JAN 10	0 53	38.8		6 1	16.3		1.19169	1.48588	15.620	0.4	7.9	0.876	-24.9	135.2	326.6	330.9	85.6E
JAN 12	0 58	10.5		6 32	6.7		1.20976	1.48846	15.671	0.4	7.7	0.877	-24.7	115.6	326.2	332.0	84.8E
JAN 14	1 2	43.7		7 2	49.4		1.22789	1.49105	15.721	0.4	7.6	0.877	-24.5	96.0	325.8	333.1	84.0E
JAN 16	1 7	18.5		7 33	23.5		1.24608	1.49365	15.766	0.5	7.5	0.878	-24.3	76.4	325.4	334.2	83.2E
JAN 18	1 11	54.8		8 3	48.2		1.26431	1.49625	15.808	0.5	7.4	0.879	-24.1	56.8	325.0	335.3	82.4E
JAN 20	1 16	32.7		8 34	2.9		1.28260	1.49886	15.844	0.5	7.3	0.880	-23.8	37.2	324.6	336.4	81.6E
JAN 22	1 21	12.2		9 4	6.5		1.30091	1.50147	15.873	0.6	7.2	0.881	-23.6	17.6	324.2	337.4	80.9E
JAN 24	1 25	53.2		9 33	58.1		1.31926	1.50409	15.896	0.6	7.1	0.882	-23.3	358.0	323.9	338.5	80.1E
JAN 26	1 30	35.7		10 3	36.4		1.33763	1.50670	15.913	0.6	7.0	0.883	-23.0	338.5	323.6	339.6	79.3E
JAN 28	1 35	19.7		10 33	0.4		1.35602	1.50932	15.926	0.7	6.9	0.884	-22.7	318.9	323.3	340.7	78.5E
JAN 30	1 40	5.2		11 2	8.9		1.37442	1.51194	15.934	0.7	6.8	0.886	-22.4	299.3	323.0	341.7	77.8E
FEB 1	1 44	52.1		11 31	0.9		1.39283	1.51456	15.940	0.7	6.7	0.887	-22.1	279.7	322.7	342.8	77.0E
FEB 3	1 49	40.5		11 59	35.3		1.41125	1.51717	15.943	0.8	6.6	0.888	-21.7	260.1	322.5	343.8	76.3E
FEB 5	1 54	30.3		12 27	51.1		1.42966	1.51979	15.944	0.8	6.6	0.889	-21.4	240.6	322.2	344.9	75.5E
FEB 7	1 59	21.6		12 55	47.2		1.44808	1.52240	15.943	0.8	6.5	0.890	-21.0	221.0	322.0	345.9	74.7E
FEB 9	2 4	14.2		13 23	22.7		1.46650	1.52500	15.940	0.8	6.4	0.892	-20.6	201.5	321.8	347.0	74.0E
FEB 11	2 9	8.2		13 50	36.6		1.48491	1.52761	15.935	0.9	6.3	0.893	-20.3	181.9	321.7	348.0	73.2E
FEB 13	2 14	3.7		14 17	28.3		1.50331	1.53020	15.927	0.9	6.2	0.894	-19.9	162.4	321.5	349.0	72.5E
FEB 15	2 19	0.7		14 43	57.1		1.52170	1.53279	15.915	0.9	6.2	0.895	-19.5	142.8	321.4	350.1	71.7E
FEB 17	2 23	59.2		15 10	2.2		1.54007	1.53537	15.898	0.9	6.1	0.897	-19.1	123.3	321.3	351.1	71.0E
FEB 19	2 28	59.1		15 35	42.8		1.55842	1.53795	15.874	1.0	6.0	0.898	-18.6	103.8	321.2	352.1	70.3E
FEB 21	2 34	0.5		16 0	57.8		1.57674	1.54051	15.844	1.0	5.9	0.899	-18.2	84.2	321.2	353.2	69.5E
FEB 23	2 39	3.4		16 25	46.4		1.59502	1.54307	15.808	1.0	5.9	0.901	-17.8	64.7	321.1	354.2	68.8E
FEB 25	2 44	7.8		16 50	7.5		1.61326	1.54561	15.768	1.0	5.8	0.902	-17.3	45.2	321.1	355.2	68.1E
FEB 27	2 49	13.6		17 14	0.2		1.63145	1.54814	15.723	1.1	5.7	0.904	-16.9	25.7	321.1	356.2	67.3E
FEB 29	2 54	20.8		17 37	23.6		1.64958	1.55067	15.675	1.1	5.7	0.905	-16.4	6.2	321.1	357.2	66.6E
MAR 2	2 59	29.3		18 0	16.9		1.66766	1.55317	15.625	1.1	5.6	0.906	-15.9	346.7	321.2	358.2	65.9E
MAR 4	3 4	39.2		18 22	39.0		1.68568	1.55567	15.572	1.1	5.6	0.908	-15.5	327.2	321.3	359.2	65.2E
MAR 6	3 9	50.5		18 44	29.0		1.70364	1.55815	15.518	1.2	5.5	0.909	-15.0	307.7	321.3	360.2	64.4E
MAR 8	3 15	3.0		19 5	46.2		1.72153	1.56061	15.462	1.2	5.4	0.911	-14.5	288.3	321.5	361.2	63.7E
MAR 10	3 20	16.8		19 26	29.8		1.73936	1.56306	15.405	1.2	5.4	0.912	-14.0	268.8	321.6	362.2	63.0E
MAR 12	3 25	31.9		19 46	39.3		1.75712	1.56550	15.345	1.2	5.3	0.914	-13.5	249.3	321.7	363.2	62.3E
MAR 14	3 30	48.3		20 6	14.0		1.77480	1.56791	15.282	1.2	5.3	0.915	-13.0	229.9	321.9	364.2	61.6E
MAR 16	3 36	6.0		20 25	13.4		1.79242	1.57031	15.214	1.3	5.2	0.916	-12.5	210.4	322.1	365.2	60.9E
MAR 18	3 41	25.0		20 43	36.7		1.80995	1.57269	15.140	1.3	5.2	0.918	-11.9	191.0	322.3	366.2	60.2E
MAR 20	3 46	45.2		21 1	23.2		1.82739	1.57505	15.060	1.3	5.1	0.919	-11.4	171.5	322.6	367.2	59.4E
MAR 22	3 52	6.6		21 18	32.1		1.84474	1.57739	14.976	1.3	5.1	0.921	-10.9	152.1	322.8	368.2	58.7E
MAR 24	3 57	29.2		21 35	2.8		1.86199	1.57972	14.886	1.3	5.0	0.922	-10.3	132.6	323.1	369.2	58.0E
MAR 26	4 2	53.0		21 50	54.7		1.87913	1.58202	14.792	1.4	5.0	0.924	-9.8	113.2	323.4	370.2	57.3E
MAR 28	4 8	17.8		22 6	7.0		1.89616	1.58430	14.695	1.4	4.9	0.925	-9.3	93.8	323.7	371.2	56.6E
MAR 30	4 13	43.6		22 20	39.3		1.91308	1.58655	14.596	1.4	4.9	0.927	-8.7	74.4	324.0	372.2	55.9E
APR 1	4 19	10.4		22 34	30.7		1.92988	1.58879	14.495	1.4	4.9	0.928	-8.2	54.9	324.4	373.2	55.2E
APR 3	4 24	38.0		22 47	40.9		1.94656	1.59100	14.392	1.4	4.8	0.929	-7.6	35.5	324.7	374.2	54.6E
APR 5	4 30	6.5		23 0	9.2		1.96313	1.59319	14.289	1.4	4.8	0.931	-7.1	16.1	325.1	375.2	54.0E
APR 7	4 35	35.8		23 11	55.1		1.97957	1.59535	14.184	1.5	4.7	0.932	-6.5	356.7	325.5	376.2	53.4E
APR 9	4 41	5.9		23 22	58.5		1.99589	1.59749	14.079	1.5	4.7	0.934	-5.9	337.3	325.9	377.2	52.8E
APR 11	4 46	36.7		23 33	19.0		2.01209	1.59960	13.970	1.5	4.7	0.935	-5.4	317.9	326.4	378.2	52.2E
APR 13	4 52	8.2		23 42	56.3		2.02817	1.60169	13.858	1.5	4.6	0.937	-4.8	298.5	326.8	379.2	51.6E
APR 15	4 57	40.4		23 51	50.1		2.04411	1.60375	13.740	1.5	4.6	0.938	-4.3	279.1	327.3	380.2	51.0E
APR 17	5 3	13.1		23 59	60.0		2.05991	1.60578	13.618	1.5	4.5	0.939	-3.7	259.7	327.8	381.2	50.4E
APR 19	5 8	46.4		24 7	25.6		2.07557	1.60779	13.491	1.5	4.5	0.941	-3.1	240.3	328.3	382.2	49.8E
APR 21	5 14	20.2		24 14	6.6		2.09107	1.60977	13.359	1.6	4.5	0.942	-2.6	220.9	328.8	383.2	49.2E
APR 23	5 19	54.4		24 20	3.0		2.10643	1.61172	13.223	1.6	4.4	0.944	-2.0	201.5	329.3	384.2	48.6E
APR 25	5 25	29.0		24 25	14.4		2.12162	1.61364	13.085	1.6	4.4	0.945	-1.4	182.2	329.9	385.2	48.0E
APR 27	5 31	3.8		24 29	40.8		2.13665	1.61554	12.944	1.6	4.4	0.946	-0.9	162.8	330.4	386.2	47.4E
APR 29	5 36	38.7		24 33	21.9		2.15152	1.61740	12.802	1.6	4.4	0.948	-0.3	143.4	331.0	387.2	46.8E
MAY 1	5 42	13.7		24 36	17.7		2.16623	1.61923	12.658	1.6	4.3	0.949	0.3	124.0	331.6	388.2	46.2E
MAY 3	5 47	48.8		24 38	28.0		2.18077	1.62104	12.515	1.6	4.3	0.950	0.8	104.6	332.1	389.2	45.6E
MAY 5	5 53	23.8		24 39	52.8		2.19514	1.62281	12.371	1.6	4.3	0.952	1.4	85.2	332.8	390.2	45.0E
MAY 7	5 58	58.8		24 40	32.4		2.20935	1.62455	12.227	1.7	4.2	0.953	2.0	65.9	333.4	391.2	44.4E
MAY 9	6 4	33.6		24 40	26.9		2.22339	1.62626	12.081	1.7	4.2	0.954	2.5	46.5	334.0	392.2	43.8E
MAY 11	6 10	8.2		24 39	36.3		2.23726	1.62794	11.932	1.7	4.2	0.955	3.1	27.1	334.6	393.2	43.2E
MAY 13	6 15	42.6		24 38	0.8		2.25095	1.62958	11.779	1.7	4.2	0.957	3.7	7.7	335.3	394.2	42.6E
MAY 15	6 21	16.7		24 35	40.4		2.26447	1.63120	11.621	1.7	4.1	0.958	4.2	348.3	335.9	395.2	42.0E
MAY 17	6 26	50.4		24 32	35.3		2.27780	1.63278	11.459	1.7	4.1	0.959	4.8	329.0	336.6	396.2	41.4E
MAY 19	6 32	23.8		24 28	45.5		2.29094	1.63432	11.293	1.7	4.1	0.960	5.3	309.6	337.3	397.2	40.8E
MAY 21	6 37	56.7		24 24	11.6		2.30388	1.63584	11.124	1.7	4.1	0.962	5.9	290.2	338.0	398.2	40.2E
MAY 23	6 43	29.0		24 18	53.7		2.31663	1.63731	10.952	1.7	4.0	0.963	6.4	270.8	338.7	399.2	39.6E
MAY 25																	

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
(h m s)	(d ' ")														
JUL 2	8 31 9.0	20 9 57.7	2.52771	1.65937	7.203	1.8	3.7	0.983	16.4	242.4	353.8	54.9	24.7E		
JUL 4	8 36 20.3	19 51 3.8	2.53592	1.66008	7.004	1.8	3.7	0.984	16.9	222.9	354.6	55.8	24.1E		
JUL 6	8 41 30.5	19 31 37.7	2.54389	1.66075	6.805	1.8	3.7	0.985	17.3	203.5	355.4	56.7	23.4E		
JUL 8	8 46 39.4	19 11 40.0	2.55163	1.66138	6.602	1.8	3.7	0.986	17.7	184.0	356.2	57.5	22.8E		
JUL 10	8 51 47.2	18 51 11.3	2.55914	1.66197	6.396	1.8	3.7	0.987	18.1	164.5	357.0	58.4	22.1E		
JUL 12	8 56 53.8	18 30 12.1	2.56641	1.66252	6.187	1.8	3.7	0.987	18.6	145.0	357.8	59.3	21.5E		
JUL 14	9 1 59.3	18 8 43.3	2.57344	1.66304	5.975	1.8	3.6	0.988	18.9	125.5	358.6	60.2	20.8E		
JUL 16	9 7 3.6	17 46 45.5	2.58021	1.66351	5.761	1.8	3.6	0.989	19.3	106.0	359.4	61.1	20.2E		
JUL 18	9 12 6.8	17 24 19.4	2.58674	1.66395	5.544	1.8	3.6	0.989	19.7	86.5	0.2	61.9	19.5E		
JUL 20	9 17 8.8	17 1 26.0	2.59302	1.66435	5.325	1.8	3.6	0.990	20.1	67.0	1.0	62.8	18.9E		
JUL 22	9 22 9.7	16 38 5.9	2.59905	1.66470	5.106	1.8	3.6	0.991	20.4	47.5	1.8	63.7	18.2E		
JUL 24	9 27 9.4	16 14 19.7	2.60482	1.66502	4.886	1.8	3.6	0.991	20.8	28.0	2.7	64.6	17.6E		
JUL 26	9 32 8.0	15 50 8.4	2.61034	1.66530	4.668	1.8	3.6	0.992	21.1	8.4	3.5	65.4	16.9E		
JUL 28	9 37 5.6	15 25 32.5	2.61560	1.66554	4.450	1.8	3.6	0.993	21.5	348.9	4.3	66.3	16.3E		
JUL 30	9 42 2.1	15 0 32.9	2.62062	1.66574	4.235	1.8	3.6	0.993	21.8	329.4	5.1	67.2	15.6E		
AUG 1	9 46 57.5	14 35 10.4	2.62539	1.66589	4.021	1.8	3.6	0.994	22.1	309.8	5.9	68.0	15.0E		
AUG 3	9 51 52.0	14 9 25.7	2.62991	1.66601	3.806	1.8	3.6	0.994	22.4	290.3	6.7	68.9	14.3E		
AUG 5	9 56 45.5	13 43 19.2	2.63418	1.66609	3.589	1.8	3.6	0.995	22.7	270.7	7.5	69.8	13.7E		
AUG 7	10 1 38.1	13 16 51.6	2.63820	1.66613	3.370	1.8	3.6	0.995	22.9	251.1	8.3	70.7	13.1E		
AUG 9	10 6 29.8	12 50 3.5	2.64196	1.66613	3.148	1.8	3.5	0.996	23.2	231.6	9.1	71.5	12.4E		
AUG 11	10 11 20.7	12 22 55.6	2.64547	1.66609	2.924	1.8	3.5	0.996	23.4	212.0	9.9	72.4	11.8E		
AUG 13	10 16 10.9	11 55 28.6	2.64872	1.66601	2.697	1.8	3.5	0.997	23.7	192.4	10.7	73.3	11.1E		
AUG 15	10 21 0.2	11 27 43.4	2.65170	1.66589	2.469	1.8	3.5	0.997	23.9	172.8	11.5	74.2	10.5E		
AUG 17	10 25 48.8	10 59 40.7	2.65442	1.66573	2.239	1.8	3.5	0.997	24.1	153.2	12.3	75.0	9.8E		
AUG 19	10 30 36.8	10 31 21.3	2.65687	1.66553	2.008	1.8	3.5	0.998	24.3	133.6	13.1	75.9	9.1E		
AUG 21	10 35 24.0	10 2 45.8	2.65906	1.66529	1.778	1.8	3.5	0.998	24.5	114.0	13.9	76.8	8.5E		
AUG 23	10 40 10.6	9 33 55.0	2.66098	1.66502	1.549	1.8	3.5	0.998	24.7	94.4	14.6	77.6	7.8E		
AUG 25	10 44 56.6	9 4 49.7	2.66264	1.66470	1.322	1.8	3.5	0.999	24.9	74.8	15.4	78.5	7.2E		
AUG 27	10 49 42.0	8 35 30.8	2.66404	1.66434	1.098	1.8	3.5	0.999	25.0	55.2	16.2	79.4	6.5E		
AUG 29	10 54 27.0	8 5 58.8	2.66518	1.66394	0.875	1.8	3.5	0.999	25.1	35.6	17.0	80.3	5.9E		
AUG 31	10 59 11.4	7 36 14.6	2.66606	1.66351	0.652	1.8	3.5	0.999	25.3	16.0	17.7	81.1	5.2E		
SEP 2	11 3 55.5	7 6 18.5	2.66669	1.66303	0.429	1.8	3.5	0.999	25.4	356.4	18.5	82.0	4.6E		
SEP 4	11 8 39.2	6 36 11.2	2.66705	1.66251	0.205	1.8	3.5	1.000	25.5	336.7	19.2	82.9	4.0E		
SEP 6	11 13 22.7	6 5 53.4	2.66716	1.66196	-0.022	1.7	3.5	1.000	25.6	317.1	19.9	83.8	3.3E		
SEP 8	11 18 5.9	5 35 25.6	2.66700	1.66137	-0.250	1.7	3.5	1.000	25.6	297.5	20.7	84.7	2.7E		
SEP 10	11 22 48.9	5 4 48.6	2.66658	1.66074	-0.480	1.7	3.5	1.000	25.7	277.8	21.4	85.5	2.1E		
SEP 12	11 27 31.9	4 34 3.3	2.66589	1.66006	-0.711	1.7	3.5	1.000	25.7	258.2	22.1	86.4	1.5E		
SEP 14	11 32 14.7	4 3 10.4	2.66494	1.65935	-0.943	1.7	3.5	1.000	25.7	238.6	22.8	87.3	1.1E		
SEP 16	11 36 57.4	3 32 10.7	2.66372	1.65861	-1.176	1.7	3.5	1.000	25.8	218.9	23.5	88.2	1.0E		
SEP 18	11 41 40.1	3 1 4.8	2.66222	1.65782	-1.408	1.7	3.5	1.000	25.8	199.3	24.2	89.1	1.3W		
SEP 20	11 46 22.9	2 29 53.6	2.66046	1.65700	-1.638	1.7	3.5	1.000	25.7	179.6	24.9	89.9	1.8W		
SEP 22	11 51 5.7	1 58 37.9	2.65844	1.65613	-1.865	1.7	3.5	1.000	25.7	160.0	25.6	90.8	2.3W		
SEP 24	11 55 48.7	1 27 18.6	2.65616	1.65523	-2.090	1.7	3.5	1.000	25.7	140.4	26.2	91.7	3.0W		
SEP 26	12 0 31.8	0 55 56.3	2.65361	1.65429	-2.311	1.7	3.5	1.000	25.6	120.7	26.9	92.6	3.6W		
SEP 28	12 5 15.1	0 24 31.8	2.65082	1.65332	-2.531	1.7	3.5	0.999	25.5	101.1	27.5	93.5	4.3W		
SEP 30	12 9 58.7	0 -6-54.4	2.64777	1.65230	-2.751	1.7	3.5	0.999	25.4	81.4	28.1	94.4	4.9W		
OCT 2	12 14 42.8	0-38-21.6	2.64446	1.65125	-2.971	1.7	3.5	0.999	25.3	61.8	28.7	95.2	5.6W		
OCT 4	12 19 27.2	-1 -9-49.3	2.64091	1.65017	-3.191	1.7	3.5	0.999	25.2	42.2	29.3	96.1	6.2W		
OCT 6	12 24 12.1	-1-41-16.6	2.63709	1.64904	-3.413	1.7	3.6	0.999	25.1	22.5	29.9	97.0	6.9W		
OCT 8	12 28 57.6	-2-12-42.8	2.63302	1.64788	-3.635	1.7	3.6	0.998	25.0	2.9	30.4	97.9	7.6W		
OCT 10	12 33 43.6	-2-44 -7.0	2.62869	1.64668	-3.858	1.7	3.6	0.998	24.8	343.3	31.0	98.8	8.2W		
OCT 12	12 38 30.3	-3-15-28.5	2.62411	1.64545	-4.082	1.7	3.6	0.998	24.6	323.6	31.5	99.7	8.9W		
OCT 14	12 43 17.6	-3-46-46.3	2.61926	1.64418	-4.305	1.7	3.6	0.997	24.4	304.0	32.0	100.6	9.6W		
OCT 16	12 48 5.7	-4-17-59.6	2.61416	1.64288	-4.527	1.7	3.6	0.997	24.2	284.4	32.5	101.5	10.3W		
OCT 18	12 52 54.5	-4-49 -7.7	2.60881	1.64154	-4.747	1.7	3.6	0.997	24.0	264.8	33.0	102.4	10.9W		
OCT 20	12 57 44.2	-5-20 -9.5	2.60320	1.64016	-4.963	1.7	3.6	0.996	23.8	245.2	33.5	103.3	11.6W		
OCT 22	13 2 34.7	-5-51 -4.1	2.59735	1.63875	-5.174	1.7	3.6	0.996	23.6	225.6	33.9	104.2	12.3W		
OCT 24	13 7 26.0	-6-21-50.7	2.59125	1.63731	-5.383	1.7	3.6	0.995	23.3	205.9	34.4	105.1	13.0W		
OCT 26	13 12 18.4	-6-52-28.6	2.58491	1.63583	-5.588	1.7	3.6	0.995	23.0	186.3	34.8	106.0	13.6W		
OCT 28	13 17 11.7	-7-22-56.9	2.57834	1.63432	-5.791	1.7	3.6	0.994	22.8	166.7	35.2	106.9	14.3W		
OCT 30	13 22 6.1	-7-53-15.0	2.57153	1.63277	-5.994	1.7	3.6	0.994	22.5	147.2	35.5	107.8	15.0W		
NOV 1	13 27 1.7	-8-23-22.2	2.56449	1.63119	-6.196	1.7	3.7	0.993	22.2	127.6	35.9	108.7	15.7W		
NOV 3	13 31 58.5	-8-53-17.6	2.55722	1.62958	-6.397	1.7	3.7	0.993	21.8	108.0	36.2	109.6	16.4W		
NOV 5	13 36 56.5	-9-23 -0.3	2.54972	1.62794	-6.599	1.7	3.7	0.992	21.5	88.4	36.5	110.6	17.0W		
NOV 7	13 41 55.9	-9-52-29.3	2.54198	1.62626	-6.800	1.7	3.7	0.991	21.2	68.8	36.8	111.5	17.7W		
NOV 9	13 46 56.5	-10-21-43.7	2.53401	1.62455	-7.001	1.7	3.7	0.991	20.8	49.3	37.1	112.4	18.4W		
NOV 11	13 51 58.5	-10-50-42.5	2.52581	1.62281	-7.201	1.7	3.7	0.990	20.5	29.7	37.3	113.3	19.1W		
NOV 13	13 57 1.9	-11-19-24.9	2.51737	1.62104	-7.399	1.7	3.7	0.989	20.1	10.1	37.6	114.2	19.8W		
NOV 15	14 2 6.8	-11-47-49.7	2.50871	1.61924	-7.594	1.7	3.7	0.988	19.7	350.6	37.8	115.1	20.5W		
NOV 17	14 7 13.2	-12-15-56.0	2.49983	1.61741	-7.784	1.7	3.7	0.988	19.3	331.0	38.0	116.1	21.1W		
NOV 19	14 12 21.0	-12-43-42.7	2.49073	1.61555	-7.969	1.7	3.8	0.987	18.9	311.5	38.1	117.0	21.8W		
NOV 21	14 17 30.3	-13-11 -8.7	2.48142	1.61366	-8.149	1.7	3.8	0.986	18.5	291.9	38.3	117.9	22.5W		
NOV 23	14 22 41.2	-13-38-13.2	2.47191	1.61174	-8.326	1.7	3.8	0.985	18.1	272.4	38.4	118.9	23.2W		
NOV 25	14 27 53.7	-14 -4-55.3	2.46219	1.60979	-8.499	1.7	3.8	0.984	17.6	252.9	38.5	119.8	23.9W		
NOV 27	14 33 7.9	-14-31-14.3	2.45228	1.60781	-8.669	1.7	3.8	0.983	17.2	233.4	38.5	120.7	24.5W		
NOV 29	14 38 23.8	-14-57 -9.2	2.44217	1.60580	-8.838	1.7	3.8	0.983	16.7	213.8	38.6	121.7	25.2W		
DEC 1	14 43 41.5	-15-22-39.0	2.43186	1.60377	-9.005	1.7	3.9	0.982	16.3	194.3	38.6	122.6	25.9W		
DEC 3	14 49 0.9	-15-47-42.7	2.42136	1.60171	-9.171	1.7	3.9	0.981	15.8	174.8	38.6	123.6	26.6W		
DEC 5	14 54 22.1	-16-12-19.3	2.41068	1.59963	-9.336	1.7	3.9	0.980	15.3	155.3	38.6	124.5	27.3W		
DEC 7	14 59 45.1	-16-36-27.7	2.39980	1.59752	-9.499	1.7	3.9	0.979	14.8	135.8	38.6	125.4	27.9W		
DEC 9	15 5 9.9	-17 0 -6.9	2.38873	1.59538	-9.661	1.7	3.9								

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	16 12 30.4	-20-59-41.5	2.24297	1.56798	-11.270	1.6	4.2	0.964	7.8	242.7	35.9	138.0	36.6W
JAN 4	16 18 18.8	-21-15-28.8	2.22989	1.56557	-11.384	1.6	4.2	0.962	7.2	223.2	35.6	139.0	37.3W
JAN 6	16 24 9.0	-21-30-33.0	2.21667	1.56314	-11.495	1.5	4.2	0.961	6.6	203.8	35.2	140.0	38.0W
JAN 8	16 30 0.9	-21-44-53.5	2.20333	1.56069	-11.604	1.5	4.3	0.960	6.0	184.3	34.8	141.0	38.6W
JAN 10	16 35 54.5	-21-58-29.2	2.18987	1.55823	-11.709	1.5	4.3	0.958	5.5	164.9	34.4	142.0	39.3W
JAN 12	16 41 49.6	-22-11-19.3	2.17629	1.55575	-11.809	1.5	4.3	0.957	4.9	145.4	33.9	143.0	39.9W
JAN 14	16 47 46.1	-22-23-22.9	2.16259	1.55326	-11.902	1.5	4.3	0.956	4.3	126.0	33.5	144.0	40.6W
JAN 16	16 53 44.1	-22-34-39.0	2.14879	1.55075	-11.988	1.5	4.4	0.954	3.7	106.5	33.0	145.0	41.2W
JAN 18	16 59 43.6	-22-45 -7.2	2.13490	1.54823	-12.069	1.5	4.4	0.953	3.1	87.1	32.5	146.0	41.9W
JAN 20	17 5 44.3	-22-54-46.7	2.12092	1.54570	-12.144	1.5	4.4	0.951	2.5	67.6	32.0	147.0	42.5W
JAN 22	17 11 46.4	-23 -3-37.1	2.10685	1.54316	-12.215	1.5	4.4	0.950	1.9	48.2	31.4	148.0	43.1W
JAN 24	17 17 49.7	-23-11-37.7	2.09270	1.54061	-12.283	1.4	4.5	0.949	1.3	28.8	30.9	149.0	43.8W
JAN 26	17 23 54.2	-23-18-47.9	2.07847	1.53805	-12.347	1.4	4.5	0.947	0.6	9.3	30.3	150.1	44.4W
JAN 28	17 29 59.8	-23-25 -7.2	2.06417	1.53548	-12.409	1.4	4.5	0.946	0.0	349.9	29.7	151.1	45.0W
JAN 30	17 36 6.4	-23-30-34.9	2.04981	1.53290	-12.468	1.4	4.6	0.944	-0.6	330.4	29.1	152.1	45.7W
FEB 1	17 42 14.1	-23-35-10.6	2.03537	1.53031	-12.525	1.4	4.6	0.943	-1.2	310.9	28.4	153.2	46.3W
FEB 3	17 48 22.6	-23-38-53.8	2.02087	1.52772	-12.581	1.4	4.6	0.941	-1.8	291.5	27.8	154.2	46.9W
FEB 5	17 54 32.0	-23-41-44.2	2.00631	1.52512	-12.634	1.4	4.7	0.939	-2.4	272.0	27.1	155.2	47.5W
FEB 7	18 0 42.1	-23-43-41.5	1.99169	1.52252	-12.684	1.4	4.7	0.938	-3.0	252.6	26.5	156.3	48.1W
FEB 9	18 6 52.8	-23-44-45.5	1.97701	1.51991	-12.729	1.3	4.7	0.936	-3.6	233.1	25.8	157.3	48.8W
FEB 11	18 13 3.9	-23-44-55.7	1.96228	1.51730	-12.768	1.3	4.8	0.935	-4.2	213.6	25.1	158.4	49.4W
FEB 13	18 19 15.4	-23-44-12.1	1.94752	1.51469	-12.800	1.3	4.8	0.933	-4.8	194.2	24.3	159.4	50.0W
FEB 15	18 25 27.3	-23-42-34.6	1.93272	1.51207	-12.826	1.3	4.8	0.932	-5.4	174.7	23.6	160.5	50.6W
FEB 17	18 31 39.3	-23-40 -3.3	1.91789	1.50946	-12.848	1.3	4.9	0.930	-6.0	155.2	22.8	161.6	51.2W
FEB 19	18 37 51.6	-23-36-38.2	1.90304	1.50684	-12.864	1.3	4.9	0.928	-6.6	135.7	22.1	162.6	51.8W
FEB 21	18 44 3.9	-23-32-19.4	1.88817	1.50423	-12.878	1.2	5.0	0.927	-7.2	116.2	21.3	163.7	52.4W
FEB 23	18 50 16.1	-23-27 -7.0	1.87329	1.50162	-12.888	1.2	5.0	0.925	-7.8	96.7	20.5	164.8	53.0W
FEB 25	18 56 28.3	-23-21 -1.2	1.85840	1.49901	-12.895	1.2	5.0	0.924	-8.4	77.2	19.7	165.8	53.5W
FEB 27	19 2 40.4	-23-14 -2.0	1.84350	1.49641	-12.901	1.2	5.1	0.922	-9.0	57.7	18.9	166.9	54.1W
MAR 1	19 8 52.2	-23 -6 -9.6	1.82859	1.49381	-12.905	1.2	5.1	0.920	-9.5	38.2	18.1	168.0	54.7W
MAR 3	19 15 3.7	-22-57-24.4	1.81369	1.49121	-12.908	1.2	5.2	0.919	-10.1	18.7	17.2	169.1	55.3W
MAR 5	19 21 14.8	-22-47-46.9	1.79877	1.48863	-12.910	1.2	5.2	0.917	-10.7	359.2	16.4	170.2	55.8W
MAR 7	19 27 25.5	-22-37-17.4	1.78386	1.48605	-12.909	1.1	5.3	0.915	-11.2	339.6	15.5	171.3	56.4W
MAR 9	19 33 35.5	-22-25-56.6	1.76895	1.48348	-12.905	1.1	5.3	0.914	-11.8	320.1	14.7	172.4	57.0W
MAR 11	19 39 44.8	-22-13-45.0	1.75405	1.48092	-12.896	1.1	5.3	0.912	-12.3	300.6	13.8	173.5	57.5W
MAR 13	19 45 53.3	-22 0-43.2	1.73916	1.47837	-12.881	1.1	5.4	0.911	-12.9	281.0	12.9	174.6	58.1W
MAR 15	19 52 1.0	-21-46-51.9	1.72430	1.47583	-12.861	1.1	5.4	0.909	-13.4	261.4	12.1	175.7	58.7W
MAR 17	19 58 7.8	-21-32-11.9	1.70945	1.47330	-12.836	1.1	5.5	0.907	-13.9	241.9	11.2	176.8	59.2W
MAR 19	20 4 13.6	-21-16-43.9	1.69464	1.47079	-12.808	1.0	5.5	0.906	-14.4	222.3	10.3	177.9	59.8W
MAR 21	20 10 18.4	-21 0-28.8	1.67987	1.46829	-12.777	1.0	5.6	0.904	-15.0	202.7	9.4	179.0	60.3W
MAR 23	20 16 22.2	-20-43-27.4	1.66513	1.46581	-12.743	1.0	5.6	0.902	-15.5	183.1	8.5	180.2	60.8W
MAR 25	20 22 24.9	-20-25-40.3	1.65043	1.46335	-12.707	1.0	5.7	0.901	-15.9	163.5	7.5	181.3	61.4W
MAR 27	20 28 26.4	-20 -7 -8.4	1.63577	1.46090	-12.670	1.0	5.7	0.899	-16.4	143.9	6.6	182.4	61.9W
MAR 29	20 34 26.9	-19-47-52.4	1.62116	1.45847	-12.633	0.9	5.8	0.897	-16.9	124.3	5.7	183.6	62.4W
MAR 31	20 40 26.2	-19-27-53.3	1.60659	1.45606	-12.596	0.9	5.8	0.896	-17.4	104.7	4.8	184.7	63.0W
APR 2	20 46 24.3	-19 -7-12.3	1.59206	1.45368	-12.559	0.9	5.9	0.894	-17.8	85.0	3.8	185.9	63.5W
APR 4	20 52 21.1	-18-45-50.4	1.57757	1.45131	-12.522	0.9	5.9	0.893	-18.2	65.4	2.9	187.0	64.0W
APR 6	20 58 16.6	-18-23-48.8	1.56313	1.44897	-12.482	0.9	6.0	0.891	-18.7	45.8	2.0	188.2	64.5W
APR 8	21 4 10.6	-18 -1 -8.7	1.54874	1.44665	-12.439	0.9	6.0	0.889	-19.1	26.1	1.0	189.3	65.0W
APR 10	21 10 3.3	-17-37-51.2	1.53440	1.44435	-12.392	0.8	6.1	0.888	-19.5	6.4	0.1	190.5	65.6W
APR 12	21 15 54.6	-17-13-57.7	1.52011	1.44209	-12.342	0.8	6.2	0.886	-19.9	346.8	359.2	191.6	66.1W
APR 14	21 21 44.4	-16-49-29.3	1.50589	1.43984	-12.287	0.8	6.2	0.885	-20.3	327.1	358.2	192.8	66.6W
APR 16	21 27 32.8	-16-24-27.3	1.49173	1.43763	-12.231	0.8	6.3	0.883	-20.6	307.4	357.3	194.0	67.1W
APR 18	21 33 19.7	-15-58-53.0	1.47763	1.43545	-12.172	0.8	6.3	0.881	-21.0	287.7	356.3	195.1	67.6W
APR 20	21 39 5.2	-15-32-47.5	1.46361	1.43329	-12.111	0.7	6.4	0.880	-21.3	268.0	355.4	196.3	68.1W
APR 22	21 44 49.3	-15 -6-11.8	1.44965	1.43117	-12.050	0.7	6.5	0.878	-21.6	248.3	354.5	197.5	68.6W
APR 24	21 50 31.9	-14-39 -7.2	1.43577	1.42908	-11.989	0.7	6.5	0.877	-21.9	228.6	353.5	198.7	69.1W
APR 26	21 56 13.2	-14-11-34.6	1.42196	1.42702	-11.928	0.7	6.6	0.875	-22.2	208.8	352.6	199.9	69.6W
APR 28	22 1 53.1	-13-43-35.5	1.40821	1.42500	-11.870	0.7	6.7	0.874	-22.5	189.1	351.7	201.1	70.1W
APR 30	22 7 31.6	-13-15-11.1	1.39453	1.42301	-11.813	0.6	6.7	0.872	-22.7	169.4	350.8	202.3	70.6W
MAY 2	22 13 8.8	-12-46-23.0	1.38092	1.42105	-11.757	0.6	6.8	0.871	-23.0	149.6	349.8	203.5	71.1W
MAY 4	22 18 44.5	-12-17-12.6	1.36737	1.41913	-11.701	0.6	6.9	0.869	-23.2	129.9	348.9	204.7	71.6W
MAY 6	22 24 18.9	-11-47-41.4	1.35389	1.41726	-11.644	0.6	6.9	0.868	-23.4	110.1	348.0	205.9	72.0W
MAY 8	22 29 51.7	-11-17-50.9	1.34047	1.41541	-11.585	0.6	7.0	0.867	-23.6	90.4	347.1	207.1	72.5W
MAY 10	22 35 23.2	-10-47-42.6	1.32713	1.41361	-11.523	0.5	7.1	0.865	-23.8	70.6	346.2	208.3	73.0W
MAY 12	22 40 53.3	-10-17-18.0	1.31385	1.41185	-11.459	0.5	7.1	0.864	-24.0	50.9	345.3	209.5	73.5W
MAY 14	22 46 21.9	-9-46-38.4	1.30066	1.41013	-11.394	0.5	7.2	0.862	-24.1	31.1	344.5	210.7	74.0W
MAY 16	22 51 49.2	-9-15-45.3	1.28753	1.40846	-11.328	0.5	7.3	0.861	-24.2	11.4	343.6	211.9	74.5W
MAY 18	22 57 15.1	-8-44-40.0	1.27449	1.40682	-11.261	0.5	7.4	0.860	-24.3	351.6	342.7	213.2	75.0W
MAY 20	23 2 39.7	-8-13-23.6	1.26152	1.40524	-11.194	0.4	7.4	0.859	-24.4	331.8	341.9	214.4	75.5W
MAY 22	23 8 3.0	-7-41-57.3	1.24863	1.40369	-11.128	0.4	7.5	0.857	-24.5	312.1	341.0	215.6	76.0W
MAY 24	23 13 25.1	-7-10-22.3	1.23581	1.40219	-11.065	0.4	7.6	0.856	-24.5	292.3	340.2	216.8	76.4W
MAY 26	23 18 46.0	-6-38-39.9	1.22306	1.40074	-11.005	0.4	7.7	0.855	-24.6	272.5	339.4	218.1	76.9W
MAY 28	23 24 5.6	-6 -6-51.5	1.21038	1.39933	-10.947	0.3	7.7	0.854	-24.6	252.8	338.6	219.3	77.4W
MAY 30	23 29 24.0	-5-34-58.8	1.19777	1.39798	-10.893	0.3	7.8	0.853	-24.6	233.0	337.8	220.6	77.9W
JUN 1	23 34 41.2	-5 -3 -3.3	1.18522	1.39667	-10.840	0.3	7.9	0.851	-24.6	213.3	337.0	221.8	78.4W
JUN 3	23 39 57.1	-4-31 -6.6	1.17273	1.39541	-10.787	0.3	8.0	0.850	-24.6	193.5	336.3	223.0	78.9W
JUN 5	23 45 11.7	-3-59-10.1	1.16030	1.39420	-10.734	0.3	8.1	0.849	-24.5	173.8	335.5	224.3	79.4W
JUN 7	23 50 25.1	-3-27-15.5	1.14793	1.39304	-10.679	0.2	8.2	0.848	-24.4	154.1	334.8	225.5	79.9W
JUN 9	23 55 37.1	-2-55-24.2	1.13563	1.39193	-10.624	0.2	8.2	0.847	-24.4	134.3			

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 1	0 51 22.1	2 45 20.2	1.00432	1.38330	-10.091	-0.1	9.3	0.840	-22.5	277.9	327.6	240.6	86.4W		
JUL 3	0 56 17.8	3 14 53.7	0.99268	1.38285	-10.054	-0.1	9.4	0.839	-22.2	258.3	327.1	241.9	87.0W		
JUL 5	1 1 11.7	3 44 7.0	0.98109	1.38245	-10.018	-0.1	9.5	0.839	-22.0	238.8	326.7	243.2	87.6W		
JUL 7	1 6 3.9	4 12 58.9	0.96954	1.38212	-9.980	-0.1	9.7	0.839	-21.7	219.2	326.2	244.4	88.2W		
JUL 9	1 10 54.2	4 41 28.2	0.95803	1.38184	-9.942	-0.2	9.8	0.839	-21.4	199.6	325.8	245.7	88.8W		
JUL 11	1 15 42.7	5 9 33.8	0.94657	1.38162	-9.904	-0.2	9.9	0.839	-21.1	180.1	325.4	247.0	89.4W		
JUL 13	1 20 29.1	5 37 14.7	0.93515	1.38145	-9.865	-0.2	10.0	0.839	-20.8	160.6	325.1	248.2	90.0W		
JUL 15	1 25 13.4	6 4 30.2	0.92378	1.38135	-9.826	-0.2	10.1	0.839	-20.5	141.1	324.7	249.5	90.7W		
JUL 17	1 29 55.6	6 31 19.5	0.91245	1.38130	-9.789	-0.3	10.3	0.839	-20.2	121.6	324.4	250.8	91.3W		
JUL 19	1 34 35.7	6 57 41.9	0.90117	1.38131	-9.752	-0.3	10.4	0.839	-19.9	102.1	324.1	252.1	92.0W		
JUL 21	1 39 13.4	7 23 36.8	0.88992	1.38138	-9.719	-0.3	10.5	0.839	-19.6	82.7	323.8	253.3	92.7W		
JUL 23	1 43 48.7	7 49 3.2	0.87871	1.38150	-9.690	-0.3	10.7	0.840	-19.3	63.2	323.6	254.6	93.3W		
JUL 25	1 48 21.4	8 14 0.1	0.86753	1.38169	-9.663	-0.4	10.8	0.840	-18.9	43.8	323.3	255.9	94.1W		
JUL 27	1 52 51.4	8 38 26.4	0.85639	1.38193	-9.638	-0.4	10.9	0.840	-18.6	24.4	323.1	257.1	94.8W		
JUL 29	1 57 18.5	9 2 21.0	0.84527	1.38223	-9.613	-0.4	11.1	0.841	-18.2	5.1	322.9	258.4	95.5W		
JUL 31	2 1 42.4	9 25 43.1	0.83418	1.38258	-9.588	-0.5	11.2	0.842	-17.9	345.7	322.7	259.7	96.3W		
AUG 2	2 6 3.0	9 48 31.6	0.82312	1.38300	-9.560	-0.5	11.4	0.843	-17.5	326.4	322.6	260.9	97.1W		
AUG 4	2 10 20.0	10 10 45.9	0.81209	1.38347	-9.531	-0.5	11.5	0.844	-17.2	307.1	322.4	262.2	97.8W		
AUG 6	2 14 33.2	10 32 25.1	0.80110	1.38400	-9.499	-0.6	11.7	0.845	-16.8	287.8	322.3	263.5	98.7W		
AUG 8	2 18 42.4	10 53 28.9	0.79015	1.38458	-9.464	-0.6	11.9	0.846	-16.5	268.5	322.2	264.7	99.5W		
AUG 10	2 22 47.3	11 13 56.8	0.77924	1.38522	-9.427	-0.6	12.0	0.847	-16.2	249.3	322.1	266.0	100.4W		
AUG 12	2 26 47.8	11 33 48.5	0.76837	1.38592	-9.386	-0.7	12.2	0.848	-15.8	230.1	322.0	267.3	101.2W		
AUG 14	2 30 43.6	11 53 4.1	0.75756	1.38667	-9.344	-0.7	12.4	0.850	-15.5	210.9	321.9	268.5	102.1W		
AUG 16	2 34 34.4	12 11 43.5	0.74679	1.38747	-9.300	-0.7	12.5	0.852	-15.1	191.7	321.9	269.8	103.1W		
AUG 18	2 38 20.2	12 29 46.5	0.73607	1.38834	-9.256	-0.8	12.7	0.853	-14.8	172.6	321.8	271.0	104.0W		
AUG 20	2 42 0.4	12 47 13.0	0.72540	1.38925	-9.211	-0.8	12.9	0.855	-14.5	153.5	321.8	272.3	105.0W		
AUG 22	2 45 34.9	13 4 2.6	0.71479	1.39022	-9.166	-0.8	13.1	0.857	-14.2	134.4	321.8	273.5	106.0W		
AUG 24	2 49 3.3	13 20 14.8	0.70423	1.39124	-9.119	-0.9	13.3	0.860	-13.8	115.4	321.8	274.8	107.0W		
AUG 26	2 52 25.2	13 35 49.1	0.69372	1.39231	-9.068	-0.9	13.5	0.862	-13.5	96.3	321.8	276.0	108.1W		
AUG 28	2 55 40.1	13 50 45.4	0.68328	1.39344	-9.011	-0.9	13.7	0.864	-13.3	77.4	321.8	277.3	109.2W		
AUG 30	2 58 47.7	14 5 3.2	0.67291	1.39461	-8.948	-1.0	13.9	0.867	-13.0	58.4	321.8	278.5	110.3W		
SEP 1	3 1 47.5	14 18 42.4	0.66261	1.39584	-8.876	-1.0	14.1	0.870	-12.7	39.5	321.8	279.8	111.5W		
SEP 3	3 4 39.0	14 31 42.9	0.65241	1.39712	-8.796	-1.1	14.4	0.873	-12.4	20.6	321.8	281.0	112.7W		
SEP 5	3 7 21.9	14 44 4.8	0.64230	1.39844	-8.706	-1.1	14.6	0.876	-12.2	1.7	321.9	282.3	114.0W		
SEP 7	3 9 55.7	14 55 48.3	0.63230	1.39982	-8.607	-1.1	14.8	0.880	-12.0	342.9	321.9	283.5	115.3W		
SEP 9	3 12 19.9	15 6 53.6	0.62242	1.40124	-8.497	-1.2	15.1	0.883	-11.8	324.1	321.9	284.7	116.6W		
SEP 11	3 14 34.2	15 17 21.4	0.61267	1.40271	-8.377	-1.2	15.3	0.887	-11.6	305.4	322.0	286.0	118.0W		
SEP 13	3 16 38.2	15 27 11.9	0.60307	1.40423	-8.247	-1.3	15.5	0.891	-11.4	286.7	322.0	287.2	119.4W		
SEP 15	3 18 31.4	15 36 25.5	0.59362	1.40579	-8.107	-1.3	15.8	0.895	-11.2	268.0	322.1	288.4	120.9W		
SEP 17	3 20 13.5	15 45 2.3	0.58434	1.40739	-7.957	-1.4	16.0	0.899	-11.1	249.4	322.1	289.7	122.4W		
SEP 19	3 21 43.8	15 53 2.0	0.57524	1.40904	-7.797	-1.4	16.3	0.903	-11.0	230.8	322.1	290.9	123.9W		
SEP 21	3 23 2.0	16 0 24.3	0.56634	1.41073	-7.624	-1.4	16.5	0.908	-10.9	212.3	322.1	292.1	125.6W		
SEP 23	3 24 7.6	16 7 9.0	0.55764	1.41247	-7.436	-1.5	16.8	0.912	-10.8	193.8	322.2	293.3	127.2W		
SEP 25	3 24 59.9	16 13 15.6	0.54916	1.41424	-7.230	-1.5	17.1	0.917	-10.8	175.4	322.2	294.5	129.0W		
SEP 27	3 25 38.7	16 18 43.7	0.54094	1.41606	-7.005	-1.6	17.3	0.922	-10.7	157.0	322.2	295.7	130.7W		
SEP 29	3 26 3.4	16 23 33.0	0.53299	1.41791	-6.759	-1.6	17.6	0.927	-10.7	138.7	322.2	296.9	132.6W		
OCT 1	3 26 13.6	16 27 43.3	0.52533	1.41980	-6.491	-1.7	17.8	0.932	-10.8	120.4	322.2	298.1	134.5W		
OCT 3	3 26 9.3	16 31 14.2	0.51800	1.42174	-6.200	-1.7	18.1	0.937	-10.8	102.2	322.2	299.3	136.5W		
OCT 5	3 25 50.1	16 34 5.8	0.51102	1.42370	-5.885	-1.8	18.3	0.943	-10.9	84.0	322.2	300.5	138.5W		
OCT 7	3 25 16.1	16 36 18.1	0.50441	1.42570	-5.546	-1.8	18.6	0.948	-11.0	65.9	322.2	301.7	140.6W		
OCT 9	3 24 27.3	16 37 51.5	0.49821	1.42774	-5.184	-1.9	18.8	0.953	-11.2	47.8	322.1	302.9	142.8W		
OCT 11	3 23 24.0	16 38 46.3	0.49244	1.42981	-4.798	-1.9	19.0	0.958	-11.3	29.8	322.1	304.1	145.0W		
OCT 13	3 22 6.4	16 39 2.6	0.48713	1.43192	-4.391	-1.9	19.2	0.963	-11.5	11.9	322.0	305.3	147.3W		
OCT 15	3 20 35.0	16 38 40.5	0.48231	1.43405	-3.963	-2.0	19.4	0.968	-11.7	354.0	322.0	306.5	149.6W		
OCT 17	3 18 50.2	16 37 40.3	0.47799	1.43622	-3.513	-2.0	19.6	0.973	-12.0	336.1	321.9	307.7	152.0W		
OCT 19	3 16 52.8	16 36 2.3	0.47420	1.43841	-3.040	-2.1	19.8	0.977	-12.3	318.3	321.9	308.8	154.4W		
OCT 21	3 14 43.5	16 33 47.2	0.47097	1.44064	-2.545	-2.1	19.9	0.981	-12.5	300.5	321.8	310.0	156.9W		
OCT 23	3 12 23.1	16 30 56.1	0.46833	1.44289	-2.026	-2.1	20.0	0.985	-12.9	282.8	321.8	311.2	159.5W		
OCT 25	3 9 52.9	16 27 30.5	0.46630	1.44517	-1.484	-2.2	20.1	0.989	-13.2	265.1	321.7	312.3	162.1W		
OCT 27	3 7 13.9	16 23 32.6	0.46491	1.44747	-0.922	-2.2	20.1	0.992	-13.5	247.4	321.6	313.5	164.7W		
OCT 29	3 4 27.6	16 19 5.6	0.46418	1.44980	-0.340	-2.2	20.2	0.994	-13.9	229.8	321.6	314.6	167.3W		
OCT 31	3 1 35.7	16 14 13.0	0.46413	1.45215	0.259	-2.3	20.2	0.996	-14.2	212.2	321.5	315.8	170.0W		
NOV 2	2 58 39.8	16 8 59.3	0.46478	1.45452	0.872	-2.3	20.2	0.998	-14.6	194.6	321.5	316.9	172.7W		
NOV 4	2 55 41.6	16 3 29.6	0.46614	1.45692	1.494	-2.3	20.1	0.999	-15.0	177.0	321.4	318.1	175.4W		
NOV 6	2 52 43.0	15 57 49.6	0.46823	1.45934	2.122	-2.3	20.0	1.000	-15.4	159.4	321.4	319.2	178.1W		
NOV 8	2 49 45.8	15 52 4.9	0.47104	1.46177	2.752	-2.3	19.9	1.000	-15.7	141.9	321.4	320.4	179.0E		
NOV 10	2 46 51.5	15 46 21.3	0.47458	1.46423	3.378	-2.3	19.7	1.000	-16.1	124.3	321.3	321.5	176.4E		
NOV 12	2 44 1.9	15 40 44.5	0.47884	1.46670	4.000	-2.2	19.6	0.999	-16.4	106.7	321.3	322.6	173.7E		
NOV 14	2 41 18.4	15 35 19.8	0.48382	1.46919	4.613	-2.2	19.4	0.997	-16.8	89.0	321.3	323.7	171.0E		
NOV 16	2 38 42.3	15 30 12.5	0.48950	1.47169	5.219	-2.1	19.1	0.995	-17.1	71.4	321.3	324.9	168.4E		
NOV 18	2 36 14.8	15 25 27.5	0.49587	1.47421	5.815	-2.0	18.9	0.993	-17.4	53.7	321.3	326.0	165.8E		
NOV 20	2 33 56.8	15 21 9.3	0.50293	1.47674	6.401	-2.0	18.6	0.991	-17.7	35.9	321.3	327.1	163.2E		
NOV 22	2 31 49.2	15 17 22.5	0.51065	1.47928	6.974	-1.9	18.3	0.988	-18.0	18.2	321.3	328.2	160.7E		
NOV 24	2 29 52.9	15 14 10.9	0.51903	1.48184	7.535	-1.9	18.0	0.984	-18.2	0.4	321.3	329.3	158.2E		
NOV 26	2 28 8.6	15 11 38.4	0.52805	1.48440	8.080	-1.8	17.7	0.981	-18.5	342.5	321.3	330.4	155.8E		
NOV 28	2 26 36.7	15 9 48.2	0.53769	1.48698	8.610	-1.7	17.4	0.977	-18.7	324.6	321.3	331.5	153.4E		
NOV 30	2 25 17.6	15 8 43.2	0.54793	1.48956	9.121	-1.7	17.1	0.974	-18.8	306.6	321.3	332.6	151.1E		
DEC 2	2 24 11.8	15 8 25.6	0.55875	1.49215	9.614	-1.6	16.8	0.970	-19.0	288.6	321.3	333.7	148.8E		
DEC 4	2 23 19.3	15 8 57.3	0.57013	1.49475	10.085	-1.5	16.4	0.966	-19.1	270.5					

Date (O DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h m s)	(d ' ")	(a.u.)	(a.u.)	(km/s)	(")									
JAN 1	2 32 35.3	16 37 12.6	0.77516	1.53127	14.750	-0.6	12.1	0.917	-18.9	12.3	321.0	349.6	120.6E		
JAN 3	2 34 33.8	16 48 14.9	0.79233	1.53385	14.969	-0.6	11.8	0.914	-18.7	353.5	321.0	350.6	119.1E		
JAN 5	2 36 40.9	16 59 44.4	0.80974	1.53643	15.172	-0.5	11.6	0.912	-18.6	334.7	321.0	351.6	117.6E		
JAN 7	2 38 56.3	17 11 38.8	0.82737	1.53899	15.362	-0.4	11.3	0.910	-18.4	315.9	321.0	352.7	116.1E		
JAN 9	2 41 19.5	17 23 55.5	0.84522	1.54155	15.539	-0.4	11.1	0.908	-18.2	297.0	321.0	353.7	114.7E		
JAN 11	2 43 50.3	17 36 32.3	0.86327	1.54410	15.706	-0.3	10.9	0.906	-18.0	278.2	320.9	354.7	113.3E		
JAN 13	2 46 28.3	17 49 26.6	0.88150	1.54664	15.863	-0.3	10.6	0.904	-17.7	259.3	320.9	355.7	111.9E		
JAN 15	2 49 13.1	18 2 36.2	0.89991	1.54917	16.012	-0.2	10.4	0.902	-17.5	240.3	321.0	356.7	110.6E		
JAN 17	2 52 4.5	18 15 58.8	0.91849	1.55168	16.152	-0.2	10.2	0.901	-17.2	221.4	321.0	357.7	109.3E		
JAN 19	2 55 2.1	18 29 32.6	0.93722	1.55418	16.286	-0.1	10.0	0.899	-17.0	202.4	321.0	358.7	108.0E		
JAN 21	2 58 5.8	18 43 15.4	0.95611	1.55667	16.411	-0.1	9.8	0.898	-16.7	183.4	321.0	359.8	106.7E		
JAN 23	3 1 15.3	18 57 5.6	0.97513	1.55914	16.529	0.0	9.6	0.897	-16.4	164.4	321.1	0.7	105.4E		
JAN 25	3 4 30.5	19 11 1.3	0.99429	1.56160	16.640	0.0	9.4	0.896	-16.1	145.4	321.1	1.7	104.2E		
JAN 27	3 7 51.1	19 25 1.1	1.01357	1.56404	16.741	0.1	9.2	0.895	-15.8	126.3	321.2	2.7	103.0E		
JAN 29	3 11 17.0	19 39 3.1	1.03296	1.56647	16.833	0.1	9.1	0.894	-15.5	107.3	321.2	3.7	101.8E		
JAN 31	3 14 48.0	19 53 5.7	1.05245	1.56888	16.914	0.2	8.9	0.893	-15.1	88.2	321.3	4.7	100.6E		
FEB 2	3 18 23.9	20 7 6.9	1.07203	1.57126	16.985	0.2	8.7	0.893	-14.8	69.1	321.4	5.7	99.5E		
FEB 4	3 22 4.4	20 21 4.8	1.09169	1.57364	17.046	0.3	8.6	0.892	-14.4	50.0	321.5	6.7	98.4E		
FEB 6	3 25 49.5	20 34 57.7	1.11141	1.57599	17.099	0.3	8.4	0.892	-14.1	30.9	321.6	7.7	97.2E		
FEB 8	3 29 38.9	20 48 44.0	1.13118	1.57832	17.145	0.4	8.3	0.892	-13.7	11.7	321.8	8.6	96.1E		
FEB 10	3 33 32.4	21 2 21.9	1.15101	1.58063	17.186	0.4	8.1	0.892	-13.3	352.6	321.9	9.6	95.1E		
FEB 12	3 37 29.9	21 15 49.7	1.17089	1.58292	17.222	0.4	8.0	0.891	-12.9	333.5	322.1	10.6	94.0E		
FEB 14	3 41 31.1	21 29 6.0	1.19080	1.58519	17.253	0.5	7.9	0.891	-12.5	314.3	322.2	11.5	92.9E		
FEB 16	3 45 35.9	21 42 9.3	1.21074	1.58744	17.279	0.5	7.7	0.892	-12.1	295.2	322.4	12.5	91.8E		
FEB 18	3 49 44.3	21 54 58.3	1.23071	1.58966	17.301	0.6	7.6	0.892	-11.7	276.0	322.6	13.5	90.9E		
FEB 20	3 53 56.1	22 7 31.8	1.25071	1.59186	17.319	0.6	7.5	0.892	-11.3	256.8	322.8	14.4	89.8E		
FEB 22	3 58 11.2	22 19 48.6	1.27072	1.59404	17.331	0.6	7.4	0.892	-10.8	237.6	323.0	15.4	88.8E		
FEB 24	4 2 29.5	22 31 47.6	1.29074	1.59619	17.337	0.7	7.3	0.892	-10.4	218.4	323.3	16.3	87.8E		
FEB 26	4 6 50.9	22 43 27.7	1.31077	1.59832	17.337	0.7	7.1	0.893	-10.0	199.2	323.5	17.3	86.8E		
FEB 28	4 11 15.4	22 54 47.6	1.33079	1.60042	17.328	0.7	7.0	0.893	-9.5	180.0	323.8	18.2	85.8E		
MAR 2	4 15 42.8	23 5 46.1	1.35080	1.60250	17.311	0.8	6.9	0.894	-9.1	160.8	324.1	19.2	84.9E		
MAR 4	4 20 13.0	23 16 21.8	1.37078	1.60454	17.286	0.8	6.8	0.894	-8.6	141.6	324.4	20.1	83.9E		
MAR 6	4 24 41.9	23 26 33.8	1.39073	1.60657	17.255	0.8	6.7	0.895	-8.1	122.4	324.7	21.0	83.0E		
MAR 8	4 29 21.3	23 36 21.0	1.41064	1.60856	17.219	0.9	6.6	0.896	-7.7	103.2	325.0	22.0	82.0E		
MAR 10	4 33 59.2	23 45 42.4	1.43051	1.61053	17.179	0.9	6.5	0.897	-7.2	84.0	325.4	22.9	81.1E		
MAR 12	4 38 39.3	23 54 36.8	1.45033	1.61247	17.136	0.9	6.5	0.897	-6.7	64.7	325.7	23.8	80.2E		
MAR 14	4 43 21.6	24 3 3.3	1.47009	1.61439	17.090	1.0	6.4	0.898	-6.2	45.5	326.1	24.8	79.3E		
MAR 16	4 48 6.0	24 11 1.1	1.48981	1.61626	17.041	1.0	6.3	0.899	-5.7	26.3	326.5	25.7	78.4E		
MAR 18	4 52 52.4	24 18 29.3	1.50946	1.61811	16.989	1.0	6.2	0.900	-5.2	7.0	326.9	26.6	77.5E		
MAR 20	4 57 40.7	24 25 27.3	1.52905	1.61993	16.934	1.0	6.1	0.901	-4.7	347.8	327.3	27.6	76.6E		
MAR 22	5 2 30.9	24 31 54.4	1.54858	1.62172	16.875	1.1	6.0	0.902	-4.2	328.6	327.7	28.5	75.7E		
MAR 24	5 7 22.9	24 37 49.9	1.56804	1.62348	16.813	1.1	6.0	0.903	-3.7	309.3	328.1	29.4	74.9E		
MAR 26	5 12 16.5	24 43 13.3	1.58742	1.62520	16.745	1.1	5.9	0.904	-3.2	290.1	328.6	30.3	74.0E		
MAR 28	5 17 11.8	24 48 3.8	1.60672	1.62690	16.671	1.1	5.8	0.905	-2.7	270.8	329.0	31.2	73.1E		
MAR 30	5 22 8.6	24 52 20.5	1.62593	1.62856	16.589	1.2	5.8	0.906	-2.2	251.5	329.5	32.1	72.3E		
APR 1	5 27 6.8	24 56 3.0	1.64504	1.63019	16.501	1.2	5.7	0.907	-1.7	232.3	330.0	33.1	71.4E		
APR 3	5 32 6.5	24 59 10.8	1.66405	1.63179	16.408	1.2	5.6	0.908	-1.2	213.0	330.5	34.0	70.6E		
APR 5	5 37 7.4	25 1 43.3	1.68294	1.63336	16.311	1.2	5.6	0.909	-0.6	193.8	331.0	34.9	69.8E		
APR 7	5 42 9.3	25 3 40.1	1.70173	1.63489	16.212	1.3	5.5	0.910	-0.1	174.5	331.5	35.8	68.9E		
APR 9	5 47 12.3	25 5 0.8	1.72040	1.63639	16.109	1.3	5.4	0.912	0.4	155.2	332.1	36.7	68.1E		
APR 11	5 52 16.2	25 5 44.9	1.73894	1.63785	16.005	1.3	5.4	0.913	0.9	135.9	332.6	37.6	67.3E		
APR 13	5 57 21.0	25 5 52.1	1.75737	1.63928	15.899	1.3	5.3	0.914	1.4	116.7	333.2	38.5	66.5E		
APR 15	6 2 36.5	25 5 22.1	1.77567	1.64068	15.791	1.3	5.3	0.915	2.0	97.4	333.8	39.4	65.7E		
APR 17	6 7 32.6	25 4 14.8	1.79385	1.64204	15.682	1.4	5.2	0.916	2.5	78.1	334.3	40.3	64.9E		
APR 19	6 12 39.4	25 3 30.1	1.81190	1.64337	15.571	1.4	5.2	0.918	3.0	58.8	334.9	41.2	64.1E		
APR 21	6 17 46.8	25 0 7.7	1.82982	1.64466	15.457	1.4	5.1	0.919	3.5	39.5	335.5	42.1	63.2E		
APR 23	6 22 54.7	24 57 7.6	1.84761	1.64591	15.338	1.4	5.1	0.920	4.0	20.2	336.1	43.0	62.5E		
APR 25	6 28 3.9	24 53 29.3	1.86525	1.64713	15.215	1.4	5.0	0.922	4.6	0.9	336.8	43.9	61.7E		
APR 27	6 33 11.6	24 49 12.9	1.88276	1.64831	15.086	1.5	5.0	0.923	5.1	341.6	337.4	44.8	60.9E		
APR 29	6 38 20.6	24 44 18.1	1.90010	1.64945	14.951	1.5	4.9	0.924	5.6	322.3	338.0	45.7	60.2E		
MAY 1	6 43 29.7	24 38 45.1	1.91729	1.65056	14.812	1.5	4.9	0.925	6.1	303.0	338.7	46.6	59.4E		
MAY 3	6 48 39.1	24 32 34.0	1.93432	1.65163	14.669	1.5	4.8	0.927	6.6	283.7	339.3	47.4	58.6E		
MAY 5	6 53 48.4	24 25 44.7	1.95118	1.65267	14.524	1.5	4.8	0.928	7.2	264.4	340.0	48.3	57.9E		
MAY 7	6 58 57.7	24 18 17.5	1.96788	1.65367	14.378	1.5	4.8	0.929	7.7	245.0	340.7	49.2	57.1E		
MAY 9	7 4 6.8	24 10 12.4	1.98440	1.65463	14.230	1.6	4.7	0.931	8.2	225.7	341.3	50.1	56.4E		
MAY 11	7 9 15.8	24 1 29.6	2.00075	1.65555	14.082	1.6	4.7	0.932	8.7	206.4	342.0	51.0	55.6E		
MAY 13	7 14 24.5	23 52 9.2	2.01693	1.65643	13.932	1.6	4.6	0.933	9.2	187.1	342.7	51.9	54.9E		
MAY 15	7 19 33.0	23 42 11.6	2.03294	1.65728	13.783	1.6	4.6	0.935	9.7	167.7	343.4	52.8	54.1E		
MAY 17	7 24 41.1	23 31 37.1	2.04877	1.65808	13.633	1.6	4.6	0.936	10.2	148.4	344.1	53.6	53.4E		
MAY 19	7 29 48.9	23 20 25.8	2.06443	1.65885	13.480	1.6	4.5	0.937	10.7	129.0	344.8	54.5	52.7E		
MAY 21	7 34 56.2	23 8 38.1	2.07991	1.65958	13.325	1.6	4.5	0.939	11.2	109.7	345.5	55.4	51.9E		
MAY 23	7 40 3.1	22 56 14.1	2.09521	1.66028	13.165	1.6	4.5	0.940	11.7	90.2	346.3	56.3	51.2E		
MAY 25	7 45 9.5	22 43 13.9	2.11033	1.66093	13.001	1.7	4.4	0.941	12.1	70.9	347.0	57.2	50.5E		
MAY 27	7 50 15.5	22 29 38.0	2.12525	1.66154	12.832	1.7	4.4	0.943	12.6	51.6	347.7	58.0	49.7E		
MAY 29	7 55 20.9	22 15 26.8	2.13997	1.66212	12.659	1.7	4.4	0.944	13.1	32.2	348.5	58.9	49.0E		
MAY 31	8 0 25.7	22 0 40.8	2.15449	1.66266	12.484	1.7	4.3	0.945	13.6	12.8	349.2	59.8	48.3E		
JUN 2	8 5 29.9	21 45 20.5	2.16881	1.66315	12.306	1.7	4.3	0.946	14.0	353.4	349.9	60.7	47.6E		
JUN 4	8 10 33.4	21 29 26.2	2.18292	1.66361	12.128	1.7	4.3	0.948	14.5	334.0	350.7	61.5	46.9E		
JUN 6	8 15 36.1	21 12 58.5	2.19683	1.66403	11.949	1.7	4.3	0.949	14.9	314.6	351.4	62.4	46.2E		
JUN 8	8 20 38.1	20 55 57.9	2.21053	1.66441	11.769	1.7	4.2	0.950	15.4	295					

Date (0 DT)	RA (Mean)			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	Phase	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")														
JUL 2	9 20 0.6	16 52 5.3	2.35841	1.66585	9.510	1.8	4.0	0.965	20.2	61.8	1.5	73.8	37.2E		
JUL 4	9 24 52.3	16 28 43.6	2.36928	1.66571	9.309	1.8	4.0	0.966	20.6	42.3	2.3	74.6	36.5E		
JUL 6	9 29 43.2	16 4 56.7	2.37991	1.66554	9.109	1.8	3.9	0.967	20.9	22.8	3.1	75.5	35.8E		
JUL 8	9 34 33.3	15 40 45.2	2.39032	1.66532	8.909	1.8	3.9	0.968	21.2	3.3	3.9	76.4	35.1E		
JUL 10	9 39 22.7	15 16 9.9	2.40050	1.66506	8.710	1.8	3.9	0.969	21.6	343.8	4.6	77.3	34.5E		
JUL 12	9 44 11.3	14 51 11.3	2.41044	1.66476	8.512	1.8	3.9	0.970	21.9	324.3	5.4	78.1	33.8E		
JUL 14	9 48 59.2	14 25 50.2	2.42016	1.66442	8.315	1.8	3.9	0.971	22.2	304.8	6.2	79.0	33.1E		
JUL 16	9 53 46.5	14 0 6.9	2.42965	1.66405	8.116	1.8	3.9	0.972	22.5	285.2	7.0	79.9	32.5E		
JUL 18	9 58 33.0	13 34 1.8	2.43891	1.66363	7.915	1.8	3.8	0.973	22.8	265.7	7.8	80.8	31.8E		
JUL 20	10 3 19.0	13 7 35.5	2.44794	1.66318	7.710	1.8	3.8	0.974	23.0	246.1	8.6	81.6	31.1E		
JUL 22	10 8 4.4	12 40 48.7	2.45672	1.66268	7.502	1.8	3.8	0.975	23.3	226.6	9.4	82.5	30.5E		
JUL 24	10 12 49.3	12 13 42.0	2.46527	1.66215	7.292	1.8	3.8	0.976	23.5	207.0	10.2	83.4	29.8E		
JUL 26	10 17 33.7	11 46 16.3	2.47357	1.66157	7.080	1.8	3.8	0.977	23.8	187.5	10.9	84.3	29.1E		
JUL 28	10 22 17.5	11 18 32.1	2.48162	1.66096	6.866	1.8	3.8	0.978	24.0	167.9	11.7	85.1	28.5E		
JUL 30	10 27 0.8	10 50 30.2	2.48943	1.66031	6.651	1.8	3.8	0.979	24.2	148.3	12.5	86.0	27.8E		
AUG 1	10 31 43.7	10 22 11.2	2.49699	1.65962	6.437	1.8	3.8	0.980	24.4	128.7	13.3	86.9	27.1E		
AUG 3	10 36 26.2	9 53 35.9	2.50430	1.65889	6.224	1.8	3.7	0.981	24.6	109.1	14.0	87.8	26.5E		
AUG 5	10 41 8.2	9 24 44.8	2.51137	1.65812	6.011	1.8	3.7	0.982	24.8	89.5	14.8	88.7	25.8E		
AUG 7	10 45 49.9	8 55 38.9	2.51819	1.65732	5.801	1.8	3.7	0.983	24.9	69.9	15.6	89.5	25.2E		
AUG 9	10 50 31.3	8 26 18.7	2.52477	1.65647	5.592	1.8	3.7	0.984	25.1	50.3	16.3	90.4	24.5E		
AUG 11	10 55 12.4	7 56 44.8	2.53111	1.65559	5.385	1.8	3.7	0.984	25.2	30.7	17.1	91.3	23.8E		
AUG 13	10 59 53.3	7 26 57.9	2.53721	1.65467	5.177	1.8	3.7	0.985	25.4	11.1	17.8	92.2	23.2E		
AUG 15	11 4 34.1	6 56 58.3	2.54307	1.65371	4.967	1.8	3.7	0.986	25.5	351.5	18.6	93.1	22.5E		
AUG 17	11 9 14.7	6 26 46.6	2.54869	1.65272	4.755	1.8	3.7	0.987	25.6	331.8	19.3	94.0	21.9E		
AUG 19	11 13 55.3	5 56 23.4	2.55406	1.65169	4.541	1.8	3.7	0.988	25.7	312.2	20.1	94.8	21.2E		
AUG 21	11 18 35.9	5 25 49.6	2.55918	1.65062	4.324	1.8	3.7	0.988	25.7	292.6	20.8	95.7	20.6E		
AUG 23	11 23 16.5	4 55 5.8	2.56404	1.64951	4.106	1.8	3.7	0.989	25.8	272.9	21.5	96.6	19.9E		
AUG 25	11 27 57.2	4 24 12.9	2.56866	1.64837	3.886	1.8	3.6	0.990	25.8	253.3	22.2	97.5	19.3E		
AUG 27	11 32 37.9	3 53 11.6	2.57302	1.64719	3.667	1.8	3.6	0.990	25.9	233.7	22.9	98.4	18.6E		
AUG 29	11 37 18.9	3 22 2.5	2.57713	1.64597	3.448	1.8	3.6	0.991	25.9	214.0	23.6	99.3	17.9E		
AUG 31	11 41 60.0	2 50 46.5	2.58099	1.64472	3.230	1.8	3.6	0.992	25.9	194.4	24.3	100.2	17.3E		
SEP 2	11 46 41.3	2 19 24.2	2.58460	1.64343	3.014	1.8	3.6	0.992	25.9	174.7	25.0	101.1	16.6E		
SEP 4	11 51 23.0	1 47 56.6	2.58795	1.64211	2.800	1.8	3.6	0.993	25.8	155.1	25.6	102.0	16.0E		
SEP 6	11 56 5.0	1 16 24.3	2.59107	1.64075	2.588	1.8	3.6	0.993	25.8	135.4	26.3	102.9	15.3E		
SEP 8	12 0 47.3	0 44 48.1	2.59393	1.63936	2.379	1.8	3.6	0.994	25.7	115.8	26.9	103.8	14.7E		
SEP 10	12 5 30.1	0 13 8.5	2.59656	1.63793	2.171	1.8	3.6	0.994	25.7	96.1	27.6	104.7	14.0E		
SEP 12	12 10 13.4	0-18-33.9	2.59895	1.63646	1.962	1.8	3.6	0.995	25.6	76.5	28.2	105.6	13.4E		
SEP 14	12 14 57.3	0-50-18.5	2.60110	1.63497	1.751	1.7	3.6	0.995	25.5	56.8	28.8	106.5	12.7E		
SEP 16	12 19 41.9	-1-22-4.6	2.60300	1.63344	1.539	1.7	3.6	0.996	25.4	37.2	29.4	107.4	12.1E		
SEP 18	12 24 27.2	-1-53-51.2	2.60465	1.63187	1.325	1.7	3.6	0.996	25.2	17.5	29.9	108.3	11.4E		
SEP 20	12 29 13.2	-2-25-37.7	2.60606	1.63028	1.110	1.7	3.6	0.997	25.1	357.9	30.5	109.2	10.8E		
SEP 22	12 33 60.0	-2-57-23.0	2.60721	1.62865	0.894	1.7	3.6	0.997	24.9	338.2	31.1	110.1	10.1E		
SEP 24	12 38 47.6	-3-29-6.4	2.60812	1.62699	0.679	1.7	3.6	0.997	24.8	318.6	31.6	111.1	9.5E		
SEP 26	12 43 36.1	-4 0-47.0	2.60878	1.62529	0.465	1.7	3.6	0.998	24.6	298.9	32.1	112.0	8.8E		
SEP 28	12 48 25.6	-4-32-23.9	2.60920	1.62357	0.252	1.7	3.6	0.998	24.4	279.3	32.6	112.9	8.2E		
SEP 30	12 53 16.0	-5 -3-56.4	2.60937	1.62181	0.041	1.7	3.6	0.998	24.2	259.6	33.1	113.8	7.5E		
OCT 2	12 58 7.5	-5-35-23.4	2.60929	1.62002	-0.166	1.7	3.6	0.999	24.0	240.0	33.6	114.7	6.9E		
OCT 4	13 3 0.1	-6 -6-44.0	2.60898	1.61820	-0.371	1.7	3.6	0.999	23.7	220.4	34.0	115.7	6.3E		
OCT 6	13 7 53.7	-6-37-57.3	2.60844	1.61635	-0.572	1.7	3.6	0.999	23.5	200.7	34.4	116.6	5.6E		
OCT 8	13 12 48.6	-7 -9 -2.7	2.60767	1.61448	-0.770	1.7	3.6	0.999	23.2	181.1	34.9	117.5	5.0E		
OCT 10	13 17 44.8	-7-39-59.4	2.60666	1.61257	-0.969	1.6	3.6	0.999	22.9	161.5	35.3	118.4	4.3E		
OCT 12	13 22 42.3	-8-10-46.7	2.60543	1.61063	-1.168	1.6	3.6	1.000	22.6	141.9	35.6	119.4	3.7E		
OCT 14	13 27 41.2	-8-41-23.6	2.60396	1.60867	-1.367	1.6	3.6	1.000	22.3	122.2	36.0	120.3	3.0E		
OCT 16	13 32 41.6	-9-11-49.1	2.60227	1.60667	-1.568	1.6	3.6	1.000	22.0	102.6	36.3	121.3	2.4E		
OCT 18	13 37 43.5	-9-42-2.2	2.60034	1.60465	-1.769	1.6	3.6	1.000	21.7	83.0	36.6	122.2	1.8E		
OCT 20	13 42 46.9	-10-12-1.9	2.59818	1.60261	-1.969	1.6	3.6	1.000	21.3	63.4	36.9	123.1	1.1E		
OCT 22	13 47 51.9	-10-41-47.2	2.59579	1.60053	-2.169	1.6	3.6	1.000	21.0	43.8	37.2	124.1	0.6E		
OCT 24	13 52 58.6	-11-11-17.0	2.59317	1.59843	-2.368	1.6	3.6	1.000	20.6	24.2	37.4	125.0	0.4W		
OCT 26	13 58 6.9	-11-40-30.4	2.59033	1.59631	-2.564	1.6	3.6	1.000	20.2	4.6	37.7	126.0	0.9W		
OCT 28	14 3 17.0	-12 -9-26.1	2.58725	1.59416	-2.757	1.6	3.6	1.000	19.8	345.0	37.9	126.9	1.6W		
OCT 30	14 8 28.8	-12-38-3.2	2.58396	1.59198	-2.947	1.6	3.6	1.000	19.4	325.5	38.1	127.9	2.2W		
NOV 1	14 13 42.3	-13 -6-20.4	2.58045	1.58979	-3.132	1.6	3.6	1.000	19.0	305.9	38.2	128.8	2.8W		
NOV 3	14 18 57.7	-13-34-16.7	2.57672	1.58756	-3.314	1.6	3.6	1.000	18.6	286.3	38.3	129.8	3.5W		
NOV 5	14 24 15.0	-14 -1-51.2	2.57279	1.58532	-3.491	1.6	3.6	1.000	18.1	266.7	38.5	130.8	4.1W		
NOV 7	14 29 34.2	-14-29-2.9	2.56866	1.58305	-3.667	1.6	3.6	0.999	17.7	247.2	38.6	131.7	4.7W		
NOV 9	14 34 55.4	-14-55-50.9	2.56432	1.58076	-3.842	1.6	3.7	0.999	17.2	227.6	38.6	132.7	5.4W		
NOV 11	14 40 18.6	-15-22-14.0	2.55979	1.57846	-4.016	1.6	3.7	0.999	16.8	208.1	38.7	133.7	6.0W		
NOV 13	14 45 43.9	-15-48-11.1	2.55505	1.57613	-4.191	1.6	3.7	0.999	16.3	188.5	38.7	134.6	6.6W		
NOV 15	14 51 11.3	-16-13-40.9	2.55010	1.57378	-4.365	1.6	3.7	0.998	15.8	169.0	38.7	135.6	7.3W		
NOV 17	14 56 40.8	-16-38-42.2	2.54496	1.57141	-4.538	1.6	3.7	0.998	15.3	149.4	38.6	136.6	7.9W		
NOV 19	15 2 12.4	-17 -3-14.0	2.53962	1.56902	-4.710	1.6	3.7	0.998	14.8	129.9	38.6	137.6	8.5W		
NOV 21	15 7 46.2	-17-27-14.9	2.53408	1.56661	-4.880	1.6	3.7	0.997	14.3	110.3	38.5	138.6	9.2W		
NOV 23	15 13 22.1	-17-50-43.9	2.52835	1.56419	-5.047	1.6	3.7	0.997	13.7	90.8	38.4	139.6	9.8W		
NOV 25	15 19 0.2	-18-13-39.6	2.52242	1.56175	-5.211	1.6	3.7	0.997	13.2	71.3	38.3	140.5	10.4W		
NOV 27	15 24 40.5	-18-36-0.8	2.51631	1.55930	-5.370	1.6	3.7	0.996	12.7	51.8	38.1	141.5	11.1W		
NOV 29	15 30 22.9	-18-57-46.3	2.51002	1.55683	-5.524	1.6	3.7	0.996	12.1	32.2	37.9	142.5	11.7W		
DEC 1	15 36 7.4	-19-18-54.9	2.50356	1.55434	-5.672	1.6	3.7	0.995	11.6	12.7	37.7	143.5	12.3W		
DEC 3	15 41 54.1	-19-39-25.5	2.49692	1.55184	-5.817	1.6	3.8	0.995	11.0	353.2	37.5	144.5	12.9W		
DEC 5	15 47 43.0	-19-59-17.0	2.49012	1.54933	-5.957	1.5	3.8	0.994	10.4	333.7	37.3	145.6	13.5W		
DEC 7	15 53 34.0	-20-18-28.6	2.48316	1.54681	-6.096	1.5	3.8	0.994	9.9	314.2	37.0	146.6	14.2W		
DEC 9	15 59 27.2	-20-36-58.9	2.47604												

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	S.E.	S.E.	P.A.	L _s	Solar
	(h	m	s)	(d	'	"	(a.u.)	(a.u.)	(km/s)	(")	Lat	Long	Axis	Elong
JAN 1	16	11	41.6	-20-20	-2.5	6.15241	5.38069	-16.645	-1.6	32.0	-3.0	273.5	10.6	281.4
JAN 3	16	13	22.1	-20-24	-20.8	6.13281	5.38019	-17.282	-1.6	32.1	-3.0	214.3	10.4	281.6
JAN 5	16	15	1.7	-20-28	-32.3	6.11249	5.37969	-17.905	-1.6	32.3	-3.0	155.1	10.2	281.7
JAN 7	16	16	40.2	-20-32	-37.0	6.09146	5.37919	-18.512	-1.6	32.4	-3.0	95.8	10.1	281.9
JAN 9	16	18	17.6	-20-36	-34.9	6.06973	5.37868	-19.105	-1.6	32.5	-3.0	36.6	9.9	282.0
JAN 11	16	19	53.8	-20-40	-25.9	6.04733	5.37818	-19.682	-1.7	32.6	-3.0	337.4	9.7	282.2
JAN 13	16	21	28.8	-20-44	-10.2	6.02427	5.37767	-20.244	-1.7	32.7	-3.0	278.3	9.6	282.3
JAN 15	16	23	2.6	-20-47	-47.7	6.00057	5.37717	-20.792	-1.7	32.9	-3.0	219.1	9.4	282.5
JAN 17	16	24	35.1	-20-51	-18.5	5.97625	5.37666	-21.324	-1.7	33.0	-3.0	159.9	9.3	282.7
JAN 19	16	26	6.2	-20-54	-42.5	5.95131	5.37615	-21.843	-1.7	33.1	-3.0	100.7	9.1	282.8
JAN 21	16	27	35.8	-20-57	-59.7	5.92579	5.37563	-22.347	-1.7	33.3	-3.0	41.6	9.0	283.0
JAN 23	16	29	3.9	-21-1	-10.2	5.89969	5.37512	-22.837	-1.7	33.4	-3.0	342.4	8.8	283.1
JAN 25	16	30	30.6	-21-4	-13.9	5.87304	5.37460	-23.311	-1.7	33.6	-3.0	283.3	8.7	283.3
JAN 27	16	31	55.5	-21-7	-11.0	5.84585	5.37409	-23.768	-1.7	33.7	-3.0	224.2	8.5	283.4
JAN 29	16	33	18.9	-21-10	-1.6	5.81814	5.37357	-24.206	-1.7	33.9	-3.0	165.1	8.4	283.6
JAN 31	16	34	40.4	-21-12	-45.7	5.78994	5.37305	-24.623	-1.7	34.0	-3.0	106.0	8.2	283.7
FEB 2	16	36	0.1	-21-15	-23.1	5.76127	5.37253	-25.018	-1.7	34.2	-3.0	46.9	8.1	283.9
FEB 4	16	37	17.9	-21-17	-54.1	5.73215	5.37201	-25.389	-1.8	34.4	-3.0	347.8	8.0	284.1
FEB 6	16	38	33.7	-21-20	-18.5	5.70262	5.37149	-25.737	-1.8	34.6	-3.0	288.7	7.8	284.2
FEB 8	16	39	47.6	-21-22	-36.5	5.67270	5.37096	-26.063	-1.8	34.8	-3.0	229.6	7.7	284.4
FEB 10	16	40	59.3	-21-24	-48.3	5.64242	5.37043	-26.365	-1.8	34.9	-3.0	170.6	7.6	284.5
FEB 12	16	42	9.0	-21-26	-53.9	5.61180	5.36991	-26.645	-1.8	35.1	-3.0	111.5	7.5	284.7
FEB 14	16	43	16.5	-21-28	-53.4	5.58088	5.36938	-26.903	-1.8	35.3	-3.0	52.5	7.3	284.8
FEB 16	16	44	21.7	-21-30	-46.8	5.54966	5.36885	-27.139	-1.8	35.5	-3.0	353.5	7.2	285.0
FEB 18	16	45	24.6	-21-32	-34.2	5.51819	5.36832	-27.353	-1.8	35.7	-3.0	294.5	7.1	285.1
FEB 20	16	46	25.1	-21-34	-15.5	5.48648	5.36778	-27.546	-1.9	35.9	-3.0	235.4	7.0	285.3
FEB 22	16	47	23.3	-21-35	-51.0	5.45456	5.36725	-27.714	-1.9	36.1	-3.0	176.5	6.9	285.5
FEB 24	16	48	18.9	-21-37	-20.8	5.42246	5.36671	-27.859	-1.9	36.4	-3.0	117.5	6.8	285.6
FEB 26	16	49	12.1	-21-38	-45.0	5.39021	5.36618	-27.976	-1.9	36.6	-3.0	58.5	6.7	285.8
FEB 28	16	50	2.5	-21-40	-3.6	5.35784	5.36564	-28.065	-1.9	36.8	-3.0	359.5	6.6	285.9
MAR 2	16	50	50.3	-21-41	-16.6	5.32539	5.36510	-28.124	-1.9	37.0	-3.0	300.6	6.6	286.1
MAR 4	16	51	35.4	-21-42	-24.1	5.29289	5.36456	-28.153	-1.9	37.2	-3.0	241.6	6.5	286.2
MAR 6	16	52	17.6	-21-43	-26.1	5.26036	5.36401	-28.152	-1.9	37.5	-3.0	182.7	6.4	286.4
MAR 8	16	52	57.0	-21-44	-22.8	5.22786	5.36347	-28.121	-2.0	37.7	-3.0	123.8	6.3	286.6
MAR 10	16	53	33.6	-21-45	-14.3	5.19541	5.36293	-28.061	-2.0	37.9	-3.0	64.9	6.3	286.7
MAR 12	16	54	7.2	-21-46	-0.6	5.16305	5.36238	-27.972	-2.0	38.2	-3.0	6.0	6.2	286.9
MAR 14	16	54	37.9	-21-46	-41.9	5.13080	5.36183	-27.855	-2.0	38.4	-3.0	307.1	6.2	287.0
MAR 16	16	55	5.6	-21-47	-18.1	5.09870	5.36128	-27.710	-2.0	38.7	-3.0	248.2	6.1	287.2
MAR 18	16	55	30.2	-21-47	-49.2	5.06679	5.36073	-27.538	-2.0	38.9	-3.0	189.4	6.1	287.3
MAR 20	16	55	51.7	-21-48	-15.4	5.03510	5.36018	-27.338	-2.0	39.2	-3.0	130.5	6.0	287.5
MAR 22	16	56	10.2	-21-48	-36.7	5.00365	5.35963	-27.109	-2.1	39.4	-3.0	71.7	6.0	287.6
MAR 24	16	56	25.6	-21-48	-53.3	4.97248	5.35907	-26.850	-2.1	39.6	-3.0	12.8	6.0	287.8
MAR 26	16	56	37.7	-21-49	-5.2	4.94163	5.35852	-26.559	-2.1	39.9	-3.0	314.0	5.9	288.0
MAR 28	16	56	46.7	-21-49	-12.3	4.91114	5.35796	-26.235	-2.1	40.1	-3.0	255.2	5.9	288.1
MAR 30	16	56	52.4	-21-49	-14.6	4.88104	5.35740	-25.876	-2.1	40.4	-3.0	196.4	5.9	288.3
APR 1	16	56	54.9	-21-49	-12.2	4.85137	5.35684	-25.484	-2.1	40.6	-3.0	137.6	5.9	288.4
APR 3	16	56	54.1	-21-49	-5.2	4.82217	5.35628	-25.059	-2.1	40.9	-3.0	78.8	5.9	288.6
APR 5	16	56	50.1	-21-48	-53.5	4.79349	5.35572	-24.602	-2.2	41.1	-3.0	20.1	5.9	288.7
APR 7	16	56	42.9	-21-48	-37.2	4.76535	5.35515	-24.114	-2.2	41.4	-3.0	321.3	5.9	288.9
APR 9	16	56	32.5	-21-48	-16.4	4.73779	5.35459	-23.595	-2.2	41.6	-3.0	262.6	6.0	289.1
APR 11	16	56	19.0	-21-47	-51.1	4.71085	5.35402	-23.046	-2.2	41.8	-3.0	203.8	6.0	289.2
APR 13	16	56	2.3	-21-47	-21.2	4.68456	5.35346	-22.470	-2.2	42.1	-3.0	145.1	6.0	289.4
APR 15	16	55	42.4	-21-46	-46.8	4.65895	5.35289	-21.866	-2.2	42.3	-3.0	86.4	6.0	289.5
APR 17	16	55	19.6	-21-46	-7.8	4.63405	5.35232	-21.236	-2.2	42.5	-3.0	27.7	6.1	289.7
APR 19	16	54	53.7	-21-45	-24.4	4.60990	5.35175	-20.577	-2.2	42.8	-3.0	329.0	6.1	289.8
APR 21	16	54	24.8	-21-44	-36.6	4.58652	5.35118	-19.890	-2.3	43.0	-3.0	270.3	6.2	290.0
APR 23	16	53	53.1	-21-43	-44.5	4.56396	5.35060	-19.174	-2.3	43.2	-3.0	211.6	6.2	290.2
APR 25	16	53	18.4	-21-42	-47.9	4.54224	5.35003	-18.427	-2.3	43.4	-3.0	152.9	6.3	290.3
APR 27	16	52	40.9	-21-41	-47.0	4.52140	5.34945	-17.652	-2.3	43.6	-3.0	94.2	6.4	290.5
APR 29	16	52	0.8	-21-40	-41.6	4.50147	5.34887	-16.848	-2.3	43.8	-3.0	35.5	6.4	290.6
MAY 1	16	51	18.1	-21-39	-32.0	4.48248	5.34829	-16.019	-2.3	44.0	-3.0	336.9	6.5	290.8
MAY 3	16	50	32.9	-21-38	-18.3	4.46447	5.34772	-15.165	-2.3	44.2	-3.0	278.2	6.6	290.9
MAY 5	16	49	45.3	-21-37	-0.5	4.44745	5.34713	-14.289	-2.3	44.3	-3.0	219.6	6.7	291.1
MAY 7	16	48	55.5	-21-35	-38.8	4.43146	5.34655	-13.392	-2.4	44.5	-3.0	160.9	6.8	291.3
MAY 9	16	48	3.6	-21-34	-13.2	4.41652	5.34597	-12.477	-2.4	44.6	-3.0	102.3	6.8	291.4
MAY 11	16	47	9.7	-21-32	-43.8	4.40264	5.34538	-11.545	-2.4	44.8	-3.0	43.6	6.9	291.6
MAY 13	16	46	14.0	-21-31	-10.7	4.38985	5.34480	-10.599	-2.4	44.9	-3.0	345.0	7.0	291.7
MAY 15	16	45	16.7	-21-29	-34.2	4.37816	5.34421	-9.640	-2.4	45.0	-3.0	286.3	7.1	291.9
MAY 17	16	44	17.8	-21-27	-54.5	4.36758	5.34362	-8.667	-2.4	45.1	-3.0	227.7	7.2	292.0
MAY 19	16	43	17.6	-21-26	-11.8	4.35814	5.34303	-7.680	-2.4	45.2	-3.0	169.0	7.3	292.2
MAY 21	16	42	16.2	-21-24	-26.4	4.34984	5.34244	-6.680	-2.4	45.3	-3.0	110.4	7.4	292.4
MAY 23	16	41	13.6	-21-22	-38.2	4.34271	5.34185	-5.668	-2.4	45.4	-3.0	51.7	7.6	292.5
MAY 25	16	40	10.2	-21-20	-47.6	4.33675	5.34126	-4.645	-2.4	45.5	-3.0	353.1	7.7	292.7
MAY 27	16	39	6.1	-21-18	-54.9	4.33198	5.34066	-3.614	-2.4	45.5	-3.0	294.4	7.8	292.8
MAY 29	16	38	1.5	-21-17	-0.4	4.32840	5.34007	-2.578	-2.4	45.5	-3.0	235.8	7.9	293.0
MAY 31	16	36	56.5	-21-15	-4.6	4.32602	5.33947	-1.539	-2.4	45.6	-3.0	177.1	8.0	293.1
JUN 2	16	35	51.4	-21-13	-7.6	4.32484	5.33887	-0.500	-2.4	45.6	-3.0	118.4	8.1	293.3
JUN 4	16	34	46.4	-21-11	-9.9	4.32486	5.33828	0.536	-2.4	45.6	-3.0	59.8	8.2	293.5
JUN 6	16	33	41.6	-21-9	-11.9	4.32607	5.33768	1.568	-2.4	45.6	-3.0	1.1	8.3	293.6
JUN 8	16	32	37.2	-21-7	-13.7	4.32848	5.33707	2.593	-2.4	45.5	-3.0	302.4	8.4	293.8
JUN 10	16	31	33.4	-21-5	-16.0	4.33206	5.33647	3.609	-2.4	45.5	-3.0	243.7	8.5	293.9
JUN 12	16	30	30.4	-21-3	-19.0	4.33681	5.33587	4.614	-2.4	45.5	-3.0	185.0	8.7	294.1
JUN 14	16	29	28.4	-21-1	-23.3	4.34271	5.33526	5.610	-2.4	45.4	-3.0	126.3	8.8	294.2
JUN 16	16	28	27.4	-20-59	-29.4	4.34976	5.33466	6.595	-2.4	45.3	-3.0	67.6	8.9	294.4
JUN 18	16</													

Date (0 DT)	RA [Mean] (h m s)			Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	16	21	16.8	-20-46 -3.0	4.44559	5.32977	13.956	-2.3	44.3	-2.9	317.4	9.6	295.7	147.3E
JUL 4	16	20	32.3	-20-44-41.4	4.46219	5.32916	14.780	-2.3	44.2	-2.9	258.5	9.7	295.8	145.3E
JUL 6	16	19	50.2	-20-43-25.3	4.47972	5.32854	15.578	-2.3	44.0	-2.9	199.7	9.7	296.0	143.2E
JUL 8	16	19	10.7	-20-42-14.9	4.49816	5.32792	16.348	-2.3	43.8	-2.9	140.8	9.8	296.1	141.1E
JUL 10	16	18	33.8	-20-41-10.6	4.51748	5.32730	17.092	-2.3	43.6	-2.9	81.9	9.9	296.3	139.1E
JUL 12	16	17	59.6	-20-40-12.9	4.53763	5.32668	17.808	-2.3	43.4	-2.9	23.0	9.9	296.5	137.0E
JUL 14	16	17	28.1	-20-39-21.7	4.55860	5.32606	18.500	-2.3	43.2	-2.9	324.1	10.0	296.6	135.0E
JUL 16	16	16	59.5	-20-38-37.2	4.58036	5.32544	19.167	-2.3	43.0	-2.9	265.2	10.0	296.8	133.0E
JUL 18	16	16	33.7	-20-37-59.7	4.60287	5.32482	19.809	-2.3	42.8	-2.9	206.3	10.1	296.9	131.0E
JUL 20	16	16	10.9	-20-37-29.3	4.62611	5.32419	20.424	-2.2	42.6	-2.9	147.3	10.1	297.1	129.0E
JUL 22	16	15	51.0	-20-37 -6.2	4.65004	5.32357	21.011	-2.2	42.4	-2.9	88.3	10.1	297.3	127.0E
JUL 24	16	15	34.2	-20-36-50.6	4.67464	5.32294	21.569	-2.2	42.2	-2.9	29.3	10.2	297.4	125.0E
JUL 26	16	15	20.4	-20-36-42.6	4.69986	5.32231	22.097	-2.2	41.9	-2.9	330.3	10.2	297.6	123.1E
JUL 28	16	15	9.6	-20-36-42.3	4.72567	5.32169	22.594	-2.2	41.7	-2.9	271.3	10.2	297.7	121.1E
JUL 30	16	15	2.0	-20-36-49.6	4.75204	5.32106	23.059	-2.2	41.5	-2.8	212.3	10.2	297.9	119.2E
AUG 1	16	14	57.5	-20-37 -4.7	4.77893	5.32043	23.493	-2.2	41.3	-2.8	153.2	10.2	298.0	117.2E
AUG 3	16	14	56.0	-20-37-27.5	4.80630	5.31980	23.894	-2.2	41.0	-2.8	94.2	10.2	298.2	115.3E
AUG 5	16	14	57.7	-20-37-57.9	4.83412	5.31916	24.263	-2.1	40.8	-2.8	35.1	10.2	298.4	113.4E
AUG 7	16	15	2.6	-20-38-36.2	4.86234	5.31853	24.602	-2.1	40.5	-2.8	336.0	10.2	298.5	111.5E
AUG 9	16	15	10.5	-20-39-22.1	4.89094	5.31789	24.912	-2.1	40.3	-2.8	276.9	10.2	298.7	109.6E
AUG 11	16	15	21.4	-20-40-15.5	4.91988	5.31726	25.196	-2.1	40.1	-2.8	217.8	10.2	298.8	107.8E
AUG 13	16	15	35.4	-20-41-16.3	4.94914	5.31662	25.453	-2.1	39.8	-2.8	158.7	10.2	299.0	105.9E
AUG 15	16	15	52.4	-20-42-24.3	4.97867	5.31599	25.684	-2.1	39.6	-2.8	99.5	10.1	299.2	104.0E
AUG 17	16	16	12.4	-20-43-39.3	5.00846	5.31535	25.888	-2.1	39.4	-2.8	40.4	10.1	299.3	102.2E
AUG 19	16	16	35.3	-20-45 -1.5	5.03847	5.31471	26.064	-2.1	39.1	-2.8	341.2	10.1	299.5	100.4E
AUG 21	16	17	1.3	-20-46-30.5	5.06866	5.31407	26.212	-2.0	38.9	-2.8	282.0	10.0	299.6	98.6E
AUG 23	16	17	30.2	-20-48 -6.2	5.09901	5.31343	26.332	-2.0	38.7	-2.8	222.8	10.0	299.8	96.7E
AUG 25	16	18	1.9	-20-49-48.4	5.12948	5.31278	26.423	-2.0	38.4	-2.8	163.6	9.9	300.0	94.9E
AUG 27	16	18	36.6	-20-51-36.9	5.16004	5.31214	26.484	-2.0	38.2	-2.7	104.4	9.9	300.1	93.1E
AUG 29	16	19	14.0	-20-53-31.4	5.19065	5.31150	26.516	-2.0	38.0	-2.7	45.1	9.8	300.3	91.4E
AUG 31	16	19	54.3	-20-55-31.7	5.22129	5.31085	26.520	-2.0	37.8	-2.7	345.9	9.7	300.4	89.6E
SEP 2	16	20	37.3	-20-57-37.6	5.25191	5.31020	26.496	-2.0	37.5	-2.7	286.7	9.7	300.6	87.8E
SEP 4	16	21	23.0	-20-59-48.9	5.28249	5.30956	26.447	-2.0	37.3	-2.7	227.4	9.6	300.8	86.1E
SEP 6	16	22	11.4	-21 -2 -5.4	5.31300	5.30891	26.373	-1.9	37.1	-2.7	168.1	9.5	300.9	84.3E
SEP 8	16	23	2.3	-21 -4-26.7	5.34341	5.30826	26.277	-1.9	36.9	-2.7	108.8	9.4	301.1	82.6E
SEP 10	16	23	55.8	-21 -6-52.5	5.37370	5.30761	26.160	-1.9	36.7	-2.7	49.5	9.3	301.2	80.9E
SEP 12	16	24	51.7	-21 -9-22.4	5.40384	5.30696	26.022	-1.9	36.5	-2.7	350.2	9.2	301.4	79.1E
SEP 14	16	25	50.1	-21-11-56.4	5.43380	5.30631	25.861	-1.9	36.3	-2.7	290.9	9.1	301.5	77.4E
SEP 16	16	26	51.0	-21-14-34.0	5.46357	5.30565	25.678	-1.9	36.1	-2.7	231.6	9.0	301.7	75.7E
SEP 18	16	27	54.2	-21-17-15.2	5.49312	5.30500	25.473	-1.9	35.9	-2.7	172.3	8.9	301.9	74.0E
SEP 20	16	28	59.7	-21-19-59.6	5.52241	5.30435	25.244	-1.9	35.7	-2.7	113.0	8.8	302.0	72.3E
SEP 22	16	30	7.6	-21-22-46.9	5.55143	5.30369	24.992	-1.9	35.5	-2.7	53.6	8.7	302.2	70.6E
SEP 24	16	31	17.6	-21-25-36.7	5.58014	5.30303	24.716	-1.8	35.3	-2.7	354.3	8.6	302.3	68.9E
SEP 26	16	32	29.8	-21-28-28.8	5.60852	5.30238	24.417	-1.8	35.2	-2.7	294.9	8.4	302.5	67.3E
SEP 28	16	33	44.2	-21-31-22.9	5.63654	5.30172	24.096	-1.8	35.0	-2.7	235.5	8.3	302.7	65.6E
SEP 30	16	35	0.7	-21-34-18.8	5.66418	5.30106	23.753	-1.8	34.8	-2.6	176.2	8.2	302.8	63.9E
OCT 2	16	36	19.2	-21-37-16.2	5.69141	5.30040	23.391	-1.8	34.6	-2.6	116.8	8.1	303.0	62.3E
OCT 4	16	37	39.6	-21-40-14.8	5.71821	5.29974	23.012	-1.8	34.5	-2.6	57.4	7.9	303.1	60.6E
OCT 6	16	39	2.0	-21-43-14.2	5.74457	5.29908	22.617	-1.8	34.3	-2.6	358.0	7.8	303.3	59.0E
OCT 8	16	40	26.2	-21-46-14.2	5.77046	5.29841	22.206	-1.8	34.2	-2.6	298.7	7.6	303.5	57.3E
OCT 10	16	41	52.2	-21-49-14.3	5.79586	5.29775	21.780	-1.8	34.0	-2.6	239.3	7.5	303.6	55.7E
OCT 12	16	43	20.0	-21-52-14.5	5.82077	5.29708	21.338	-1.8	33.9	-2.6	179.9	7.3	303.8	54.1E
OCT 14	16	44	49.5	-21-55-14.5	5.84515	5.29642	20.879	-1.8	33.7	-2.6	120.5	7.2	303.9	52.4E
OCT 16	16	46	20.7	-21-58-14.0	5.86900	5.29575	20.404	-1.7	33.6	-2.6	61.1	7.0	304.1	50.8E
OCT 18	16	47	53.5	-22 -1-12.8	5.89228	5.29509	19.912	-1.7	33.5	-2.6	1.7	6.9	304.3	49.2E
OCT 20	16	49	27.9	-22 -4-10.6	5.91499	5.29442	19.403	-1.7	33.3	-2.6	302.2	6.7	304.4	47.6E
OCT 22	16	51	3.9	-22 -7 -7.0	5.93710	5.29375	18.877	-1.7	33.2	-2.6	242.8	6.5	304.6	46.0E
OCT 24	16	52	41.3	-22-10 -1.8	5.95860	5.29308	18.333	-1.7	33.1	-2.6	183.4	6.4	304.7	44.3E
OCT 26	16	54	20.2	-22-12-54.8	5.97945	5.29241	17.774	-1.7	33.0	-2.6	124.0	6.2	304.9	42.7E
OCT 28	16	56	0.5	-22-15-45.9	5.99965	5.29174	17.200	-1.7	32.9	-2.6	64.6	6.0	305.1	41.1E
OCT 30	16	57	42.1	-22-18-34.9	6.01918	5.29107	16.613	-1.7	32.8	-2.6	5.2	5.8	305.2	39.5E
NOV 1	16	59	25.0	-22-21-21.3	6.03803	5.29039	16.015	-1.7	32.7	-2.6	305.7	5.6	305.4	37.9E
NOV 3	17	1	9.0	-22-24 -5.0	6.05618	5.28972	15.408	-1.7	32.6	-2.5	246.3	5.5	305.6	36.3E
NOV 5	17	2	54.3	-22-26-45.7	6.07362	5.28905	14.792	-1.7	32.5	-2.5	186.9	5.3	305.7	34.7E
NOV 7	17	4	40.6	-22-29-23.2	6.09035	5.28837	14.166	-1.7	32.4	-2.5	127.5	5.1	305.9	33.1E
NOV 9	17	6	28.1	-22-31-57.4	6.10635	5.28770	13.531	-1.7	32.3	-2.5	68.0	4.9	306.0	31.6E
NOV 11	17	8	16.6	-22-34-28.1	6.12161	5.28702	12.885	-1.7	32.2	-2.5	8.6	4.7	306.2	30.0E
NOV 13	17	10	6.1	-22-36-55.1	6.13611	5.28634	12.230	-1.7	32.1	-2.5	309.2	4.5	306.4	28.4E
NOV 15	17	11	56.5	-22-39-18.2	6.14986	5.28566	11.564	-1.7	32.1	-2.5	249.8	4.3	306.5	26.8E
NOV 17	17	13	47.9	-22-41-37.2	6.16283	5.28498	10.888	-1.7	32.0	-2.5	190.3	4.1	306.7	25.2E
NOV 19	17	15	40.0	-22-43-51.9	6.17501	5.28430	10.200	-1.7	31.9	-2.5	130.9	3.9	306.8	23.6E
NOV 21	17	17	33.0	-22-46 -2.2	6.18639	5.28362	9.503	-1.7	31.9	-2.5	71.5	3.7	307.0	22.0E
NOV 23	17	19	26.8	-22-48 -7.9	6.19696	5.28294	8.796	-1.7	31.8	-2.5	12.1	3.5	307.2	20.5E
NOV 25	17	21	21.3	-22-50 -9.0	6.20671	5.28226	8.081	-1.7	31.8	-2.5	312.7	3.3	307.3	18.9E
NOV 27	17	23	16.4	-22-52 -5.4	6.21563	5.28158	7.360	-1.7	31.7	-2.5	253.2	3.1	307.5	17.3E
NOV 29	17	25	12.1	-22-53-56.8	6.22371	5.28089	6.636	-1.7	31.7	-2.5	193.8	2.9	307.6	15.7E
DEC 1	17	27	8.3	-22-55-43.1	6.23096	5.28021	5.909	-1.7	31.6	-2.4	134.4	2.7	307.8	14.1E
DEC 3	17	29	5.0	-22-57-24.2	6.23737	5.27953	5.180	-1.7	31.6	-2.4	75.0	2.5	308.0	12.6E
DEC 5	17	31	2.2	-22-58-60.0	6.24293	5.27884	4.448	-1.7	31.6	-2.4	15.6	2.3	308.1	11.0E
DEC 7	17	32	59.8	-23 0-30.4	6.24764	5.27815	3.713	-1.7	31.6	-2.4	316.2	2.1	308.3	9.4E
DEC 9	17	34	57.7	-23 -1-55.4	6.25151	5.27747	2.975	-1.7	31.5	-2.4	256.8	1.9	308.4	7.8E
DEC 11	17	36	55.9	-23 -3-14.9	6.25452</									

Date (0 DT)	RA (h m s)	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	17 58 42.8	-23-11-32.9	6.23040	5.26917	-6.018	-1.7	31.6	-2.3	264.3	359.3	310.4	11.2W
JAN 4	18 0 40.8	-23-11-43.8	6.22302	5.26847	-6.752	-1.7	31.7	-2.3	205.0	359.1	310.6	12.7W
JAN 6	18 2 38.5	-23-11-49.1	6.21480	5.26777	-7.481	-1.7	31.7	-2.3	145.6	358.9	310.7	14.3W
JAN 8	18 4 35.8	-23-11-48.9	6.20574	5.26708	-8.207	-1.7	31.8	-2.3	86.3	358.7	310.9	15.9W
JAN 10	18 6 32.6	-23-11-43.2	6.19585	5.26638	-8.928	-1.7	31.8	-2.3	27.0	358.5	311.0	17.5W
JAN 12	18 8 28.9	-23-11-32.0	6.18512	5.26568	-9.646	-1.7	31.9	-2.3	327.6	358.2	311.2	19.1W
JAN 14	18 10 24.8	-23-11-15.4	6.17357	5.26498	-10.359	-1.7	31.9	-2.3	268.3	358.0	311.4	20.7W
JAN 16	18 12 20.0	-23-10-53.5	6.16119	5.26428	-11.069	-1.7	32.0	-2.2	209.0	357.8	311.5	22.3W
JAN 18	18 14 14.6	-23-10-26.6	6.14800	5.26358	-11.773	-1.7	32.1	-2.2	149.7	357.6	311.7	23.9W
JAN 20	18 16 8.5	-23-9-54.7	6.13400	5.26288	-12.470	-1.7	32.1	-2.2	90.4	357.4	311.8	25.5W
JAN 22	18 18 1.6	-23-9-18.0	6.11920	5.26218	-13.157	-1.7	32.2	-2.2	31.1	357.2	312.0	27.1W
JAN 24	18 19 53.9	-23-8-36.5	6.10361	5.26148	-13.834	-1.7	32.3	-2.2	331.9	357.0	312.2	28.7W
JAN 26	18 21 45.3	-23-7-50.4	6.08725	5.26078	-14.498	-1.7	32.4	-2.2	272.6	356.8	312.3	30.3W
JAN 28	18 23 35.8	-23-6-59.7	6.07012	5.26007	-15.150	-1.7	32.5	-2.2	213.3	356.6	312.5	31.9W
JAN 30	18 25 25.3	-23-6-4.8	6.05226	5.25937	-15.790	-1.7	32.6	-2.2	154.1	356.4	312.7	33.5W
FEB 1	18 27 13.8	-23-5-5.7	6.03365	5.25866	-16.418	-1.7	32.7	-2.2	94.8	356.2	312.8	35.1W
FEB 3	18 29 1.2	-23-4-2.8	6.01433	5.25796	-17.035	-1.7	32.8	-2.2	35.6	356.0	313.0	36.8W
FEB 5	18 30 47.5	-23-2-56.0	5.99431	5.25725	-17.640	-1.7	32.9	-2.1	336.3	355.9	313.1	38.4W
FEB 7	18 32 32.6	-23-1-45.6	5.97359	5.25655	-18.234	-1.7	33.0	-2.1	277.1	355.7	313.3	40.0W
FEB 9	18 34 16.5	-23-0-31.8	5.95219	5.25584	-18.817	-1.7	33.1	-2.1	217.9	355.5	313.5	41.6W
FEB 11	18 35 59.1	-22-59-14.7	5.93012	5.25514	-19.389	-1.7	33.2	-2.1	158.7	355.3	313.6	43.3W
FEB 13	18 37 40.4	-22-57-54.5	5.90740	5.25443	-19.949	-1.8	33.4	-2.1	99.5	355.1	313.8	44.9W
FEB 15	18 39 20.4	-22-56-31.7	5.88404	5.25372	-20.496	-1.8	33.5	-2.1	40.3	355.0	314.0	46.5W
FEB 17	18 40 58.8	-22-55-6.4	5.86006	5.25301	-21.029	-1.8	33.6	-2.1	341.1	354.8	314.1	48.2W
FEB 19	18 42 35.8	-22-53-38.8	5.83547	5.25230	-21.545	-1.8	33.8	-2.1	281.9	354.6	314.3	49.8W
FEB 21	18 44 11.1	-22-52-9.2	5.81029	5.25159	-22.043	-1.8	33.9	-2.1	222.7	354.4	314.4	51.5W
FEB 23	18 45 44.9	-22-50-37.7	5.78456	5.25088	-22.521	-1.8	34.1	-2.0	163.6	354.3	314.6	53.1W
FEB 25	18 47 16.9	-22-49-4.6	5.75828	5.25017	-22.980	-1.8	34.2	-2.0	104.4	354.1	314.8	54.8W
FEB 27	18 48 47.2	-22-47-30.2	5.73148	5.24946	-23.420	-1.8	34.4	-2.0	45.3	354.0	314.9	56.4W
FEB 29	18 50 15.8	-22-45-54.8	5.70418	5.24875	-23.841	-1.8	34.6	-2.0	346.2	353.8	315.1	58.1W
MAR 2	18 51 42.4	-22-44-18.6	5.67641	5.24804	-24.244	-1.8	34.7	-2.0	287.0	353.6	315.3	59.8W
MAR 4	18 53 7.2	-22-42-41.9	5.64818	5.24733	-24.628	-1.8	34.9	-2.0	227.9	353.5	315.4	61.5W
MAR 6	18 54 30.1	-22-41-4.9	5.61952	5.24661	-24.994	-1.9	35.1	-2.0	168.8	353.4	315.6	63.1W
MAR 8	18 55 50.9	-22-39-27.7	5.59045	5.24590	-25.343	-1.9	35.3	-2.0	109.7	353.2	315.8	64.8W
MAR 10	18 57 9.7	-22-37-50.8	5.56098	5.24519	-25.673	-1.9	35.5	-2.0	50.6	353.1	315.9	66.5W
MAR 12	18 58 26.5	-22-36-14.5	5.53114	5.24447	-25.985	-1.9	35.6	-2.0	351.6	352.9	316.1	68.2W
MAR 14	18 59 41.1	-22-34-39.0	5.50096	5.24376	-26.277	-1.9	35.8	-2.0	292.5	352.8	316.2	69.9W
MAR 16	19 0 53.4	-22-33-4.7	5.47045	5.24304	-26.548	-1.9	36.0	-1.9	233.4	352.7	316.4	71.7W
MAR 18	19 2 3.4	-22-31-31.9	5.43964	5.24233	-26.795	-1.9	36.2	-1.9	174.4	352.6	316.6	73.4W
MAR 20	19 3 11.1	-22-30-0.7	5.40856	5.24161	-27.017	-1.9	36.5	-1.9	115.4	352.5	316.7	75.1W
MAR 22	19 4 16.4	-22-28-31.5	5.37723	5.24089	-27.213	-1.9	36.7	-1.9	56.3	352.3	316.9	76.8W
MAR 24	19 5 19.2	-22-27-4.5	5.34570	5.24018	-27.383	-2.0	36.9	-1.9	357.3	352.2	317.1	78.6W
MAR 26	19 6 19.6	-22-25-40.0	5.31398	5.23946	-27.527	-2.0	37.1	-1.9	298.3	352.1	317.2	80.3W
MAR 28	19 7 17.3	-22-24-18.3	5.28212	5.23874	-27.646	-2.0	37.3	-1.9	239.3	352.0	317.4	82.1W
MAR 30	19 8 12.5	-22-22-59.7	5.25013	5.23802	-27.741	-2.0	37.6	-1.9	180.4	351.9	317.6	83.8W
APR 1	19 9 5.0	-22-21-44.3	5.21804	5.23731	-27.810	-2.0	37.8	-1.9	121.4	351.8	317.7	85.6W
APR 3	19 9 54.8	-22-20-32.5	5.18589	5.23659	-27.856	-2.0	38.0	-1.9	62.4	351.8	317.9	87.4W
APR 5	19 10 41.8	-22-19-24.4	5.15370	5.23587	-27.878	-2.0	38.3	-1.9	3.5	351.7	318.0	89.2W
APR 7	19 11 26.1	-22-18-20.2	5.12149	5.23515	-27.876	-2.1	38.5	-1.9	304.5	351.6	318.2	91.0W
APR 9	19 12 7.6	-22-17-20.3	5.08931	5.23443	-27.849	-2.1	38.7	-1.8	245.6	351.5	318.4	92.8W
APR 11	19 12 46.2	-22-16-25.0	5.05717	5.23371	-27.796	-2.1	39.0	-1.8	186.7	351.5	318.5	94.6W
APR 13	19 13 21.8	-22-15-34.5	5.02510	5.23299	-27.716	-2.1	39.2	-1.8	127.8	351.4	318.7	96.4W
APR 15	19 13 54.4	-22-14-48.9	4.99315	5.23227	-27.606	-2.1	39.5	-1.8	68.9	351.4	318.9	98.2W
APR 17	19 14 24.0	-22-14-8.5	4.96134	5.23155	-27.465	-2.1	39.7	-1.8	10.0	351.3	319.0	100.1W
APR 19	19 14 50.6	-22-13-33.3	4.92971	5.23082	-27.292	-2.1	40.0	-1.8	311.2	351.3	319.2	101.9W
APR 21	19 15 14.0	-22-13-3.6	4.89830	5.23010	-27.089	-2.2	40.2	-1.8	252.3	351.2	319.4	103.8W
APR 23	19 15 34.3	-22-12-39.4	4.86714	5.22938	-26.855	-2.2	40.5	-1.8	193.4	351.2	319.5	105.7W
APR 25	19 15 51.4	-22-12-21.1	4.83627	5.22866	-26.591	-2.2	40.8	-1.8	134.6	351.2	319.7	107.6W
APR 27	19 16 5.4	-22-12-8.6	4.80572	5.22793	-26.298	-2.2	41.0	-1.8	75.8	351.1	319.9	109.5W
APR 29	19 16 16.2	-22-12-2.0	4.77553	5.22721	-25.977	-2.2	41.3	-1.8	17.0	351.1	320.0	111.4W
MAY 1	19 16 23.7	-22-12-1.3	4.74572	5.22649	-25.627	-2.2	41.5	-1.8	318.1	351.1	320.2	113.3W
MAY 3	19 16 28.1	-22-12-6.5	4.71633	5.22576	-25.250	-2.2	41.8	-1.8	259.4	351.1	320.3	115.2W
MAY 5	19 16 29.3	-22-12-17.8	4.68740	5.22504	-24.846	-2.3	42.1	-1.8	200.6	351.1	320.5	117.1W
MAY 7	19 16 27.2	-22-12-35.2	4.65894	5.22431	-24.414	-2.3	42.3	-1.8	141.8	351.1	320.7	119.1W
MAY 9	19 16 22.0	-22-12-58.8	4.63101	5.22359	-23.953	-2.3	42.6	-1.8	83.0	351.1	320.8	121.0W
MAY 11	19 16 13.4	-22-13-28.5	4.60362	5.22286	-23.462	-2.3	42.8	-1.8	24.3	351.1	321.0	123.0W
MAY 13	19 16 1.7	-22-14-4.3	4.57682	5.22214	-22.938	-2.3	43.1	-1.8	325.5	351.1	321.2	125.0W
MAY 15	19 15 46.7	-22-14-45.9	4.55064	5.22141	-22.383	-2.3	43.3	-1.8	266.8	351.2	321.3	127.0W
MAY 17	19 15 28.6	-22-15-33.3	4.52512	5.22069	-21.795	-2.3	43.6	-1.8	208.1	351.2	321.5	129.0W
MAY 19	19 15 7.3	-22-16-26.4	4.50030	5.21996	-21.177	-2.4	43.8	-1.8	149.3	351.2	321.7	131.0W
MAY 21	19 14 42.9	-22-17-25.1	4.47620	5.21923	-20.529	-2.4	44.0	-1.8	90.6	351.3	321.8	133.0W
MAY 23	19 14 15.5	-22-18-29.2	4.45288	5.21851	-19.853	-2.4	44.3	-1.8	31.9	351.3	322.0	135.0W
MAY 25	19 13 45.1	-22-19-38.4	4.43035	5.21778	-19.150	-2.4	44.5	-1.8	333.2	351.4	322.2	137.1W
MAY 27	19 13 11.7	-22-20-52.4	4.40864	5.21705	-18.422	-2.4	44.7	-1.8	274.5	351.4	322.3	139.1W
MAY 29	19 12 35.6	-22-22-11.0	4.38780	5.21633	-17.669	-2.4	44.9	-1.7	215.9	351.5	322.5	141.2W
MAY 31	19 11 56.6	-22-23-34.0	4.36783	5.21560	-16.893	-2.4	45.1	-1.7	157.2	351.6	322.7	143.2W
JUN 2	19 11 15.1	-22-25-1.0	4.34878	5.21487	-16.096	-2.4	45.3	-1.7	98.5	351.6	322.8	145.3W
JUN 4	19 10 30.9	-22-26-31.9	4.33065	5.21414	-15.276	-2.5	45.5	-1.7	39.8	351.7	323.0	147.4W
JUN 6	19 9 44.3	-22-28-6.3	4.31349	5.21341	-14.434	-2.5	45.7	-1.7	341.2	351.8	323.1	149.5W
JUN 8	19 8 55.3	-22-29-44.1	4.29732	5.21269	-13.569	-2.5	45.9	-1.7	282.5	351.9	323.3	151.6W
JUN 10	19 8 4.0	-22-31-24.6	4.28215	5.21196	-12.680	-2.5	46.0	-1.7	223.9	351.9	323.5	153.7W
JUN 12	19 7 10.5	-22-33-7.6	4.26803	5.21123	-11.769	-2.5	46.2	-1.7	165.2	352.0	323.6	155.8W
JUN 14	19 6 15.1	-22-34-52.7	4.25497	5.21050	-10.838	-2.5	46.3	-1.7	106.6	352.1	323.8	158.0W
JUN 16	19 5 17.8	-22-36-39.5	4.24299	5.20977	-9.889	-2.5	46.5	-1.7	47.9	352.2	324.0	160.1W
JUN 18	19 4 18.8	-22-38-27.7	4.23213	5.20904	-8.923	-2.5						

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 2	18 56	52.7	-22-51-12.1	4.18814	5.20393	-1.905	-2.6	47.1	-1.8	298.7	353.1	325.3	177.3W
JUL 4	18 55	46.4	-22-52-58.3	4.18652	5.20320	-0.885	-2.6	47.1	-1.8	240.1	353.2	325.5	179.5W
JUL 6	18 54	39.9	-22-54-42.9	4.18609	5.20247	0.137	-2.6	47.1	-1.8	181.4	353.3	325.6	178.4E
JUL 8	18 53	33.6	-22-56-25.6	4.18684	5.20174	1.161	-2.6	47.1	-1.8	122.7	353.5	325.8	176.2E
JUL 10	18 52	27.5	-22-58 -6.0	4.18877	5.20101	2.185	-2.6	47.1	-1.8	64.1	353.6	326.0	174.0E
JUL 12	18 51	21.8	-22-59-44.0	4.19188	5.20028	3.205	-2.5	47.0	-1.8	5.4	353.7	326.1	171.9E
JUL 14	18 50	16.8	-23 -1-19.4	4.19617	5.19955	4.221	-2.5	47.0	-1.8	306.7	353.8	326.3	169.7E
JUL 16	18 49	12.6	-23 -2-52.1	4.20163	5.19881	5.228	-2.5	46.9	-1.8	248.0	353.9	326.5	167.6E
JUL 18	18 48	9.5	-23 -4-21.8	4.20824	5.19808	6.224	-2.5	46.8	-1.8	189.2	354.0	326.6	165.4E
JUL 20	18 47	7.5	-23 -5-48.3	4.21600	5.19735	7.208	-2.5	46.8	-1.8	130.5	354.1	326.8	163.3E
JUL 22	18 46	7.0	-23 -7-11.6	4.22488	5.19662	8.177	-2.5	46.7	-1.8	71.8	354.2	327.0	161.1E
JUL 24	18 45	8.0	-23 -8-31.5	4.23488	5.19589	9.128	-2.5	46.6	-1.8	13.0	354.3	327.1	159.0E
JUL 26	18 44	10.8	-23 -9-48.0	4.24596	5.19516	10.062	-2.5	46.4	-1.8	314.3	354.4	327.3	156.9E
JUL 28	18 43	15.4	-23-11 -1.1	4.25811	5.19443	10.975	-2.5	46.3	-1.8	255.5	354.5	327.5	154.7E
JUL 30	18 42	22.1	-23-12-10.9	4.27131	5.19369	11.869	-2.5	46.2	-1.8	196.7	354.6	327.6	152.6E
AUG 1	18 41	30.9	-23-13-17.3	4.28552	5.19296	12.744	-2.5	46.0	-1.8	137.9	354.7	327.8	150.5E
AUG 3	18 40	41.9	-23-14-20.3	4.30074	5.19223	13.600	-2.5	45.8	-1.8	79.1	354.8	328.0	148.4E
AUG 5	18 39	55.3	-23-15-19.7	4.31693	5.19150	14.438	-2.5	45.7	-1.8	20.2	354.9	328.1	146.3E
AUG 7	18 39	11.3	-23-16-15.6	4.33408	5.19077	15.254	-2.5	45.5	-1.8	321.4	355.0	328.3	144.2E
AUG 9	18 38	29.8	-23-17 -8.1	4.35216	5.19004	16.047	-2.4	45.3	-1.8	262.5	355.0	328.5	142.1E
AUG 11	18 37	51.1	-23-17-57.3	4.37114	5.18930	16.816	-2.4	45.1	-1.8	203.7	355.1	328.6	140.1E
AUG 13	18 37	15.3	-23-18-43.2	4.39100	5.18857	17.559	-2.4	44.9	-1.8	144.8	355.2	328.8	138.0E
AUG 15	18 36	42.3	-23-19-25.7	4.41169	5.18784	18.274	-2.4	44.7	-1.8	85.9	355.2	329.0	136.0E
AUG 17	18 36	12.4	-23-20 -5.0	4.43320	5.18711	18.960	-2.4	44.5	-1.8	26.9	355.3	329.1	133.9E
AUG 19	18 35	45.5	-23-20-41.0	4.45548	5.18638	19.616	-2.4	44.2	-1.8	328.0	355.3	329.3	131.9E
AUG 21	18 35	21.7	-23-21-13.7	4.47850	5.18565	20.241	-2.4	44.0	-1.8	269.1	355.4	329.5	129.9E
AUG 23	18 35	1.2	-23-21-43.4	4.50223	5.18491	20.835	-2.4	43.8	-1.8	210.1	355.4	329.6	127.9E
AUG 25	18 34	43.9	-23-22-10.1	4.52662	5.18418	21.398	-2.4	43.6	-1.8	151.1	355.4	329.8	125.9E
AUG 27	18 34	29.8	-23-22-33.8	4.55165	5.18345	21.932	-2.3	43.3	-1.7	92.1	355.5	330.0	123.9E
AUG 29	18 34	18.9	-23-22-54.7	4.57727	5.18272	22.437	-2.3	43.1	-1.7	33.1	355.5	330.1	121.9E
AUG 31	18 34	11.4	-23-23-12.6	4.60347	5.18199	22.916	-2.3	42.8	-1.7	334.1	355.5	330.3	120.0E
SEP 2	18 34	7.1	-23-23-27.4	4.63020	5.18126	23.368	-2.3	42.6	-1.7	275.0	355.5	330.5	118.0E
SEP 4	18 34	6.1	-23-23-39.4	4.65744	5.18052	23.792	-2.3	42.3	-1.7	216.0	355.5	330.6	116.1E
SEP 6	18 34	8.5	-23-23-48.5	4.68516	5.17979	24.187	-2.3	42.1	-1.7	156.9	355.5	330.8	114.2E
SEP 8	18 34	14.2	-23-23-54.6	4.71331	5.17906	24.553	-2.3	41.8	-1.7	97.8	355.5	331.0	112.2E
SEP 10	18 34	23.1	-23-23-57.9	4.74186	5.17833	24.888	-2.2	41.6	-1.7	38.7	355.5	331.1	110.3E
SEP 12	18 34	35.4	-23-23-58.2	4.77079	5.17760	25.191	-2.2	41.3	-1.7	339.6	355.5	331.3	108.4E
SEP 14	18 34	51.0	-23-23-55.5	4.80005	5.17687	25.464	-2.2	41.1	-1.7	280.4	355.4	331.5	106.5E
SEP 16	18 35	9.8	-23-23-49.7	4.82960	5.17614	25.704	-2.2	40.8	-1.7	221.3	355.4	331.6	104.7E
SEP 18	18 35	31.9	-23-23-40.9	4.85942	5.17541	25.913	-2.2	40.6	-1.7	162.1	355.4	331.8	102.8E
SEP 20	18 35	57.3	-23-23-28.9	4.88946	5.17468	26.092	-2.2	40.3	-1.7	102.9	355.3	332.0	100.9E
SEP 22	18 36	25.8	-23-23-13.9	4.91968	5.17395	26.240	-2.2	40.1	-1.7	43.7	355.3	332.1	99.1E
SEP 24	18 36	57.4	-23-22-55.7	4.95006	5.17322	26.360	-2.2	39.8	-1.7	344.5	355.2	332.3	97.3E
SEP 26	18 37	32.0	-23-22-34.3	4.98057	5.17249	26.455	-2.1	39.6	-1.7	285.3	355.1	332.5	95.4E
SEP 28	18 38	9.7	-23-22 -9.4	5.01117	5.17176	26.524	-2.1	39.3	-1.7	226.1	355.1	332.7	93.6E
SEP 30	18 38	50.4	-23-21-41.0	5.04183	5.17103	26.569	-2.1	39.1	-1.7	166.9	355.0	332.8	91.8E
OCT 2	18 39	34.0	-23-21 -9.1	5.07254	5.17030	26.589	-2.1	38.9	-1.7	107.6	354.9	333.0	90.0E
OCT 4	18 40	20.6	-23-20-33.5	5.10325	5.16957	26.583	-2.1	38.6	-1.7	48.4	354.8	333.2	88.2E
OCT 6	18 41	9.9	-23-19-54.2	5.13394	5.16884	26.551	-2.1	38.4	-1.7	349.1	354.8	333.3	86.4E
OCT 8	18 42	2.1	-23-19-11.1	5.16458	5.16811	26.492	-2.1	38.2	-1.7	289.8	354.7	333.5	84.7E
OCT 10	18 42	57.0	-23-18-23.9	5.19513	5.16738	26.406	-2.1	37.9	-1.6	230.5	354.6	333.7	82.9E
OCT 12	18 43	54.7	-23-17-32.5	5.22557	5.16665	26.294	-2.0	37.7	-1.6	171.2	354.5	333.8	81.1E
OCT 14	18 44	54.9	-23-16-36.9	5.25587	5.16592	26.154	-2.0	37.5	-1.6	111.9	354.4	334.0	79.4E
OCT 16	18 45	57.8	-23-15-36.9	5.28598	5.16520	25.989	-2.0	37.3	-1.6	52.6	354.3	334.2	77.6E
OCT 18	18 47	3.2	-23-14-32.4	5.31589	5.16447	25.797	-2.0	37.1	-1.6	353.2	354.1	334.3	75.9E
OCT 20	18 48	11.1	-23-13-23.5	5.34557	5.16374	25.582	-2.0	36.9	-1.6	293.9	354.0	334.5	74.2E
OCT 22	18 49	21.4	-23-12-10.0	5.37499	5.16301	25.346	-2.0	36.7	-1.6	234.6	353.9	334.7	72.5E
OCT 24	18 50	33.9	-23-10-51.7	5.40412	5.16229	25.089	-2.0	36.5	-1.6	175.2	353.8	334.8	70.7E
OCT 26	18 51	48.8	-23 -9-28.3	5.43294	5.16156	24.813	-2.0	36.3	-1.6	115.9	353.6	335.0	69.0E
OCT 28	18 53	5.8	-23 -7-59.9	5.46143	5.16083	24.518	-1.9	36.1	-1.6	56.5	353.5	335.2	67.3E
OCT 30	18 54	25.0	-23 -6-26.3	5.48958	5.16010	24.204	-1.9	35.9	-1.6	357.1	353.4	335.3	65.7E
NOV 1	18 55	46.3	-23 -4-47.5	5.51734	5.15938	23.871	-1.9	35.7	-1.6	297.7	353.2	335.5	64.0E
NOV 3	18 57	9.6	-23 -3 -3.3	5.54472	5.15865	23.518	-1.9	35.6	-1.6	238.3	353.1	335.7	62.3E
NOV 5	18 58	34.9	-23 -1-13.5	5.57167	5.15793	23.144	-1.9	35.4	-1.5	179.0	352.9	335.9	60.6E
NOV 7	19 0	2.1	-22-59-18.1	5.59818	5.15720	22.750	-1.9	35.2	-1.5	119.6	352.8	336.0	58.9E
NOV 9	19 1	31.1	-22-57-16.9	5.62422	5.15648	22.335	-1.9	35.1	-1.5	60.2	352.6	336.2	57.3E
NOV 11	19 3	2.0	-22-55 -9.8	5.64977	5.15575	21.900	-1.9	34.9	-1.5	0.7	352.5	336.4	55.6E
NOV 13	19 4	34.7	-22-52-56.7	5.67480	5.15503	21.446	-1.9	34.7	-1.5	301.3	352.3	336.5	54.0E
NOV 15	19 6	9.0	-22-50-37.7	5.69931	5.15430	20.973	-1.9	34.6	-1.5	241.9	352.1	336.7	52.3E
NOV 17	19 7	44.9	-22-48-12.7	5.72325	5.15358	20.483	-1.9	34.4	-1.5	182.5	352.0	336.9	50.7E
NOV 19	19 9	22.4	-22-45-41.6	5.74662	5.15285	19.978	-1.9	34.3	-1.5	123.1	351.8	337.0	49.0E
NOV 21	19 11	1.3	-22-43 -4.3	5.76940	5.15213	19.460	-1.8	34.2	-1.5	63.7	351.6	337.2	47.4E
NOV 23	19 12	41.7	-22-40-20.6	5.79157	5.15141	18.930	-1.8	34.0	-1.4	4.2	351.5	337.4	45.8E
NOV 25	19 14	23.4	-22-37-30.5	5.81313	5.15069	18.388	-1.8	33.9	-1.4	304.8	351.3	337.5	44.1E
NOV 27	19 16	6.5	-22-34-34.0	5.83405	5.14996	17.834	-1.8	33.8	-1.4	245.4	351.1	337.7	42.5E
NOV 29	19 17	50.8	-22-31-31.0	5.85433	5.14924	17.267	-1.8	33.7	-1.4	185.9	351.0	337.9	40.9E
DEC 1	19 19	36.2	-22-28-21.6	5.87394	5.14852	16.686	-1.8	33.6	-1.4	126.5	350.8	338.1	39.3E
DEC 3	19 21	22.9	-22-25 -5.7	5.89287	5.14780	16.093	-1.8	33.5	-1.4	67.1	350.6	338.2	37.7E
DEC 5	19 23	10.6	-22-21-43.1	5.91111	5.14708	15.486	-1.8	33.4	-1.4	7.6	350.4	338.4	36.0E
DEC 7	19 24	59.4	-22-18-13.8	5.92864	5.14636	14.865	-1.8	33.3	-1.4	308.2	350.2	338.6	34.4E
DEC 9	19 26	49.2	-22-14-37.9	5.94545	5.14564	14.231	-1.8	33.2	-1.3	248.7	350.0	338.7	32.8E
DEC 11	19 28	39.9	-22-10-55.3	5.96152	5.14492	13.585	-1.8	33.1	-1.3	189.3	349.9	338.9	31.2E
DEC 13													

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	19 49 43.0	-21-23 -0.7	6.08665	5.13703	5.991	-1.8	32.4	-1.2	255.5	347.8	340.8	13.8E
JAN 4	19 51 40.6	-21-18 -1.8	6.09315	5.13631	5.266	-1.8	32.4	-1.2	196.1	347.6	340.9	12.2E
JAN 6	19 53 38.4	-21-12-56.8	6.09881	5.13560	4.534	-1.8	32.3	-1.1	136.7	347.4	341.1	10.6E
JAN 8	19 55 36.6	-21 -7-46.0	6.10362	5.13488	3.797	-1.8	32.3	-1.1	77.2	347.2	341.3	9.1E
JAN 10	19 57 34.8	-21 -2-29.6	6.10758	5.13417	3.056	-1.8	32.3	-1.1	17.8	347.1	341.5	7.5E
JAN 12	19 59 33.2	-20-57 -7.8	6.11069	5.13346	2.313	-1.8	32.3	-1.1	318.4	346.9	341.6	5.9E
JAN 14	20 1 31.5	-20-51-40.5	6.11293	5.13275	1.570	-1.8	32.3	-1.1	259.0	346.7	341.8	4.4E
JAN 16	20 3 29.9	-20-46 -8.0	6.11431	5.13203	0.829	-1.8	32.2	-1.1	199.6	346.5	342.0	2.8E
JAN 18	20 5 28.2	-20-40-30.4	6.11485	5.13132	0.090	-1.8	32.2	-1.0	140.2	346.3	342.1	1.3E
JAN 20	20 7 26.5	-20-34-47.8	6.11453	5.13061	-0.647	-1.8	32.2	-1.0	80.8	346.1	342.3	0.5W
JAN 22	20 9 24.6	-20-29 -0.4	6.11335	5.12990	-1.382	-1.8	32.2	-1.0	21.4	346.0	342.5	2.0W
JAN 24	20 11 22.5	-20-23 -8.5	6.11134	5.12919	-2.116	-1.8	32.3	-1.0	322.0	345.8	342.6	3.5W
JAN 26	20 13 20.1	-20-17-12.1	6.10847	5.12848	-2.848	-1.8	32.3	-1.0	262.6	345.6	342.8	5.1W
JAN 28	20 15 17.6	-20-11-11.5	6.10476	5.12778	-3.579	-1.8	32.3	-0.9	203.3	345.4	343.0	6.6W
JAN 30	20 17 14.7	-20 -5 -6.8	6.10020	5.12707	-4.309	-1.8	32.3	-0.9	143.9	345.2	343.2	8.2W
FEB 1	20 19 11.4	-19-58-58.1	6.09481	5.12636	-5.038	-1.8	32.3	-0.9	84.5	345.1	343.3	9.7W
FEB 3	20 21 7.8	-19-52-45.7	6.08857	5.12565	-5.766	-1.8	32.4	-0.9	25.2	344.9	343.5	11.3W
FEB 5	20 23 3.8	-19-46-29.8	6.08149	5.12495	-6.492	-1.8	32.4	-0.9	325.8	344.7	343.7	12.9W
FEB 7	20 24 59.2	-19-40-10.8	6.07357	5.12424	-7.215	-1.8	32.5	-0.9	266.4	344.6	343.8	14.4W
FEB 9	20 26 54.2	-19-33-49.0	6.06482	5.12354	-7.933	-1.8	32.5	-0.8	207.1	344.4	344.0	16.0W
FEB 11	20 28 48.5	-19-27-24.4	6.05525	5.12283	-8.643	-1.8	32.6	-0.8	147.8	344.2	344.2	17.5W
FEB 13	20 30 42.2	-19-20-57.3	6.04486	5.12213	-9.345	-1.8	32.6	-0.8	88.4	344.1	344.4	19.1W
FEB 15	20 32 35.2	-19-14-28.0	6.03367	5.12142	-10.037	-1.8	32.7	-0.8	29.1	343.9	344.5	20.7W
FEB 17	20 34 27.5	-19 -7-56.8	6.02168	5.12072	-10.721	-1.8	32.7	-0.8	329.8	343.7	344.7	22.2W
FEB 19	20 36 19.1	-19 -1-23.9	6.00890	5.12002	-11.396	-1.8	32.8	-0.7	270.5	343.6	344.9	23.8W
FEB 21	20 38 9.9	-18-54-49.5	5.99536	5.11932	-12.062	-1.8	32.9	-0.7	211.1	343.4	345.0	25.4W
FEB 23	20 39 59.8	-18-48-14.1	5.98104	5.11862	-12.721	-1.8	33.0	-0.7	151.8	343.3	345.2	26.9W
FEB 25	20 41 48.8	-18-41-37.7	5.96597	5.11792	-13.372	-1.8	33.0	-0.7	92.5	343.1	345.4	28.5W
FEB 27	20 43 37.0	-18-35 -0.6	5.95016	5.11722	-14.015	-1.8	33.1	-0.7	33.3	343.0	345.6	30.1W
MAR 1	20 45 24.2	-18-28-23.1	5.93360	5.11652	-14.651	-1.8	33.2	-0.6	334.0	342.8	345.7	31.6W
MAR 3	20 47 10.4	-18-21-45.5	5.91631	5.11582	-15.279	-1.8	33.3	-0.6	274.7	342.7	345.9	33.2W
MAR 5	20 48 55.6	-18-15 -8.2	5.89831	5.11512	-15.898	-1.8	33.4	-0.6	215.4	342.5	346.1	34.8W
MAR 7	20 50 39.7	-18 -8-31.6	5.87959	5.11442	-16.508	-1.8	33.5	-0.6	156.2	342.4	346.2	36.4W
MAR 9	20 52 22.6	-18 -1-56.0	5.86018	5.11373	-17.106	-1.8	33.6	-0.6	96.9	342.3	346.4	37.9W
MAR 11	20 54 4.4	-17-55-21.6	5.84008	5.11303	-17.690	-1.8	33.8	-0.6	37.7	342.1	346.6	39.5W
MAR 13	20 55 45.0	-17-48-48.7	5.81932	5.11234	-18.258	-1.8	33.9	-0.5	338.4	342.0	346.8	41.1W
MAR 15	20 57 24.3	-17-42-17.7	5.79791	5.11164	-18.811	-1.9	34.0	-0.5	279.2	341.9	346.9	42.7W
MAR 17	20 59 2.2	-17-35-49.0	5.77587	5.11095	-19.349	-1.9	34.1	-0.5	220.0	341.7	347.1	44.3W
MAR 19	21 0 38.8	-17-29-22.9	5.75321	5.11026	-19.873	-1.9	34.3	-0.5	160.8	341.6	347.3	45.9W
MAR 21	21 2 14.1	-17-22-59.8	5.72997	5.10956	-20.381	-1.9	34.4	-0.5	101.6	341.5	347.5	47.5W
MAR 23	21 3 47.9	-17-16-39.8	5.70614	5.10887	-20.876	-1.9	34.5	-0.4	42.4	341.4	347.6	49.1W
MAR 25	21 5 20.2	-17-10-23.4	5.68174	5.10818	-21.357	-1.9	34.7	-0.4	343.2	341.2	347.8	50.7W
MAR 27	21 6 51.0	-17 -4-10.8	5.65680	5.10749	-21.824	-1.9	34.9	-0.4	284.0	341.1	348.0	52.3W
MAR 29	21 8 20.2	-16-58 -2.4	5.63133	5.10680	-22.278	-1.9	35.0	-0.4	224.8	341.0	348.1	53.9W
MAR 31	21 9 47.9	-16-51-58.5	5.60534	5.10611	-22.718	-1.9	35.2	-0.4	165.7	340.9	348.3	55.5W
APR 2	21 11 14.0	-16-45-59.7	5.57886	5.10542	-23.143	-1.9	35.3	-0.3	106.5	340.8	348.5	57.1W
APR 4	21 12 38.3	-16-40 -6.3	5.55189	5.10474	-23.552	-1.9	35.5	-0.3	47.4	340.7	348.7	58.7W
APR 6	21 14 0.9	-16-34-18.6	5.52445	5.10405	-23.944	-1.9	35.7	-0.3	348.3	340.6	348.8	60.4W
APR 8	21 15 21.7	-16-28-37.1	5.49658	5.10336	-24.315	-2.0	35.9	-0.3	289.1	340.5	349.0	62.0W
APR 10	21 16 40.7	-16-23 -2.0	5.46829	5.10268	-24.665	-2.0	36.1	-0.3	230.0	340.4	349.2	63.6W
APR 12	21 17 57.8	-16-17-33.7	5.43961	5.10200	-24.993	-2.0	36.2	-0.3	170.9	340.3	349.3	65.3W
APR 14	21 19 12.9	-16-12-12.8	5.41056	5.10131	-25.301	-2.0	36.4	-0.2	111.8	340.2	349.5	66.9W
APR 16	21 20 26.1	-16 -6-59.4	5.38117	5.10063	-25.588	-2.0	36.6	-0.2	52.7	340.1	349.7	68.6W
APR 18	21 21 37.2	-16 -1-54.0	5.35145	5.09995	-25.855	-2.0	36.8	-0.2	353.7	340.1	349.9	70.2W
APR 20	21 22 46.3	-15-56-56.9	5.32145	5.09927	-26.102	-2.0	37.0	-0.2	294.6	340.0	350.0	71.9W
APR 22	21 23 53.2	-15-52 -8.4	5.29116	5.09859	-26.329	-2.0	37.3	-0.2	235.5	339.9	350.2	73.6W
APR 24	21 24 58.0	-15-47-28.8	5.26063	5.09791	-26.537	-2.1	37.5	-0.2	176.5	339.8	350.4	75.2W
APR 26	21 26 0.7	-15-42-58.5	5.22987	5.09723	-26.725	-2.1	37.7	-0.1	117.5	339.8	350.6	76.9W
APR 28	21 27 1.1	-15-38-37.9	5.19890	5.09655	-26.894	-2.1	37.9	-0.1	58.4	339.7	350.7	78.6W
APR 30	21 27 59.3	-15-34-27.5	5.16774	5.09588	-27.042	-2.1	38.1	-0.1	359.4	339.6	350.9	80.3W
MAY 2	21 28 55.1	-15-30-27.6	5.13643	5.09520	-27.168	-2.1	38.4	-0.1	300.4	339.6	351.1	82.0W
MAY 4	21 29 48.5	-15-26-38.6	5.10499	5.09452	-27.270	-2.1	38.6	-0.1	241.4	339.5	351.2	83.7W
MAY 6	21 30 39.4	-15-23 -0.7	5.07345	5.09385	-27.345	-2.1	38.9	-0.1	182.4	339.4	351.4	85.5W
MAY 8	21 31 27.9	-15-19-34.4	5.04183	5.09318	-27.394	-2.1	39.1	0.0	123.5	339.4	351.6	87.2W
MAY 10	21 32 13.8	-15-16-19.9	5.01017	5.09250	-27.415	-2.2	39.3	0.0	64.5	339.3	351.8	88.9W
MAY 12	21 32 57.2	-15-13-17.6	4.97851	5.09183	-27.410	-2.2	39.6	0.0	5.6	339.3	351.9	90.7W
MAY 14	21 33 37.9	-15-10-27.9	4.94686	5.09116	-27.378	-2.2	39.9	0.0	306.6	339.2	352.1	92.4W
MAY 16	21 34 16.0	-15 -7-51.0	4.91527	5.09049	-27.321	-2.2	40.1	0.0	247.7	339.2	352.3	94.2W
MAY 18	21 34 51.4	-15 -5-27.0	4.88375	5.08982	-27.238	-2.2	40.4	0.0	188.8	339.2	352.5	96.0W
MAY 20	21 35 24.0	-15 -3-16.3	4.85235	5.08915	-27.130	-2.2	40.6	0.0	129.9	339.1	352.6	97.8W
MAY 22	21 35 54.0	-15 -1-19.0	4.82109	5.08849	-26.997	-2.2	40.9	0.0	71.0	339.1	352.8	99.6W
MAY 24	21 36 21.1	-14-59-35.5	4.78999	5.08782	-26.839	-2.3	41.2	0.1	12.1	339.1	353.0	101.4W
MAY 26	21 36 45.5	-14-58 -5.9	4.75909	5.08716	-26.657	-2.3	41.4	0.1	313.2	339.0	353.2	103.2W
MAY 28	21 37 7.0	-14-56-50.6	4.72842	5.08649	-26.448	-2.3	41.7	0.1	254.3	339.0	353.3	105.0W
MAY 30	21 37 25.6	-14-55-49.8	4.69800	5.08583	-26.211	-2.3	42.0	0.1	195.5	339.0	353.5	106.9W
JUN 1	21 37 41.2	-14-55 -3.7	4.66788	5.08517	-25.945	-2.3	42.2	0.1	136.7	339.0	353.7	108.7W
JUN 3	21 37 53.9	-14-54-32.2	4.63808	5.08450	-25.648	-2.3	42.5	0.1	77.8	339.0	353.9	110.6W
JUN 5	21 38 3.6	-14-54-15.6	4.60864	5.08384	-25.319	-2.3	42.8	0.1	19.0	339.0	354.0	112.5W
JUN 7	21 38 10.4	-14-54-14.0	4.57960	5.08318	-24.958	-2.4	43.0	0.1	320.2	339.0	354.2	114.4W
JUN 9	21 38 14.1	-14-54-27.4	4.55099	5.08253	-24.567	-2.4	43.3	0.1	261.4	339.0	354.4	116.3W
JUN 11	21 38 14.8	-14-54-55.9	4.52285	5.08187	-24.146	-2.4	43.6	0.2	202.6	339.0	354.5	118.2W
JUN 13	21 38 12.5	-14-55-39.3	4.49522	5.08121	-23.696	-2.4	43.9	0.2	143.8	339.0	354.7	120.1W
JUN 15	21 38 7.2	-14-56-37.6	4.46812	5.08055	-23.218	-2.4	44.1	0.2	85.1	339.0	354.9	122.0W
JUN 17	21 37 58.9	-14-57-50.7	4.44159	5.07990	-22.712	-2.4	44.4	0.2	26.3	339.0	355.1	124.0W
JUN 19	21 37 47.6	-14-59-18.3	4.41566	5.07925	-22.179	-2.4	44.6	0.2	327.6	339.0</		

Date (0 DT)	RA (h m s)	[Mean] (d ° ' ")	Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	21 35	39.0	-15-13 -1.7	4.27442	5.07534	-18.407	-2.5	46.1	0.2	335.3	339.1	356.3	137.9W
JUL 3	21 35	7.7	-15-16 -5.8	4.25358	5.07470	-17.676	-2.5	46.3	0.2	276.6	339.2	356.5	140.0W
JUL 5	21 34	33.7	-15-19-22.4	4.23360	5.07405	-16.917	-2.6	46.6	0.2	217.9	339.2	356.6	142.0W
JUL 7	21 33	57.1	-15-22-50.8	4.21451	5.07341	-16.131	-2.6	46.8	0.2	159.2	339.2	356.8	144.1W
JUL 9	21 33	18.0	-15-26-30.5	4.19634	5.07276	-15.321	-2.6	47.0	0.2	100.6	339.3	357.0	146.2W
JUL 11	21 32	36.4	-15-30-20.9	4.17912	5.07212	-14.487	-2.6	47.2	0.2	41.9	339.3	357.2	148.3W
JUL 13	21 31	52.6	-15-34-21.3	4.16288	5.07148	-13.631	-2.6	47.4	0.2	343.3	339.4	357.3	150.4W
JUL 15	21 31	6.5	-15-38-30.9	4.14763	5.07084	-12.756	-2.6	47.5	0.2	284.6	339.4	357.5	152.5W
JUL 17	21 30	18.4	-15-42-49.2	4.13341	5.07020	-11.862	-2.6	47.7	0.2	225.9	339.5	357.7	154.6W
JUL 19	21 29	28.4	-15-47-15.3	4.12023	5.06956	-10.952	-2.6	47.8	0.2	167.3	339.5	357.9	156.7W
JUL 21	21 28	36.5	-15-51-48.7	4.10811	5.06893	-10.026	-2.6	48.0	0.2	108.7	339.6	358.0	158.8W
JUL 23	21 27	42.9	-15-56-28.6	4.09708	5.06829	-9.083	-2.6	48.1	0.2	50.0	339.6	358.2	161.0W
JUL 25	21 26	47.4	-16-1-14.1	4.08713	5.06766	-8.124	-2.7	48.2	0.2	351.4	339.7	358.4	163.1W
JUL 27	21 25	51.0	-16-6-4.5	4.07831	5.06702	-7.148	-2.7	48.3	0.2	292.7	339.8	358.6	165.2W
JUL 29	21 24	53.1	-16-10-58.8	4.07062	5.06639	-6.157	-2.7	48.4	0.2	234.1	339.8	358.7	167.4W
JUL 31	21 23	54.1	-16-15-56.2	4.06409	5.06576	-5.153	-2.7	48.5	0.2	175.4	339.9	358.9	169.6W
AUG 2	21 22	54.1	-16-20-55.9	4.05872	5.06513	-4.138	-2.7	48.6	0.2	116.8	340.0	359.1	171.7W
AUG 4	21 21	53.3	-16-25-57.0	4.05453	5.06450	-3.115	-2.7	48.6	0.2	58.1	340.0	359.3	173.9W
AUG 6	21 20	52.0	-16-30-58.4	4.05152	5.06387	-2.087	-2.7	48.7	0.2	359.5	340.1	359.4	176.0W
AUG 8	21 19	50.2	-16-35-59.3	4.04971	5.06324	-1.056	-2.7	48.7	0.2	300.8	340.2	359.6	178.0W
AUG 10	21 18	48.2	-16-40-58.8	4.04908	5.06262	-0.024	-2.7	48.7	0.2	242.2	340.3	359.8	178.9E
AUG 12	21 17	46.2	-16-45-55.9	4.04965	5.06199	1.006	-2.7	48.7	0.2	183.5	340.3	360.0	177.2E
AUG 14	21 16	44.4	-16-50-49.8	4.05140	5.06137	2.032	-2.7	48.7	0.2	124.8	340.4	0.1	175.1E
AUG 16	21 15	42.9	-16-55-39.8	4.05434	5.06075	3.052	-2.7	48.6	0.2	66.1	340.5	0.3	172.9E
AUG 18	21 14	41.9	-17-0-25.1	4.05845	5.06013	4.066	-2.7	48.6	0.2	7.4	340.6	0.5	170.8E
AUG 20	21 13	41.6	-17-5-5.0	4.06372	5.05951	5.072	-2.7	48.5	0.1	308.7	340.6	0.7	168.6E
AUG 22	21 12	42.2	-17-9-38.7	4.07016	5.05889	6.071	-2.7	48.4	0.1	250.0	340.7	0.8	166.4E
AUG 24	21 11	43.8	-17-14-5.5	4.07774	5.05827	7.063	-2.7	48.3	0.1	191.3	340.8	1.0	164.3E
AUG 26	21 10	46.5	-17-18-24.7	4.08647	5.05766	8.046	-2.7	48.2	0.1	132.6	340.8	1.2	162.1E
AUG 28	21 9	50.7	-17-22-35.6	4.09633	5.05704	9.017	-2.6	48.1	0.1	73.8	340.9	1.4	159.9E
AUG 30	21 8	56.3	-17-26-37.7	4.10729	5.05643	9.975	-2.6	48.0	0.1	15.1	341.0	1.5	157.8E
SEP 1	21 8	3.7	-17-30-30.3	4.11936	5.05581	10.915	-2.6	47.9	0.1	316.3	341.0	1.7	155.6E
SEP 3	21 7	12.9	-17-34-12.9	4.13250	5.05520	11.837	-2.6	47.7	0.1	257.5	341.1	1.9	153.5E
SEP 5	21 6	24.1	-17-37-44.9	4.14669	5.05459	12.738	-2.6	47.5	0.1	198.7	341.2	2.1	151.3E
SEP 7	21 5	37.4	-17-41-5.9	4.16192	5.05398	13.616	-2.6	47.4	0.1	139.9	341.2	2.3	149.2E
SEP 9	21 4	53.1	-17-44-15.3	4.17814	5.05338	14.470	-2.6	47.2	0.1	81.1	341.3	2.4	147.1E
SEP 11	21 4	11.1	-17-47-12.9	4.19533	5.05277	15.298	-2.6	47.0	0.1	22.2	341.3	2.6	145.0E
SEP 13	21 3	31.7	-17-49-58.3	4.21347	5.05216	16.100	-2.6	46.8	0.1	323.4	341.4	2.8	142.9E
SEP 15	21 2	54.9	-17-52-31.5	4.23251	5.05156	16.875	-2.6	46.6	0.1	264.5	341.4	3.0	140.8E
SEP 17	21 2	20.7	-17-54-52.0	4.25244	5.05096	17.625	-2.6	46.4	0.1	205.6	341.5	3.1	138.7E
SEP 19	21 1	49.4	-17-56-59.7	4.27322	5.05036	18.350	-2.5	46.1	0.0	146.7	341.5	3.3	136.6E
SEP 21	21 1	20.8	-17-58-54.3	4.29482	5.04976	19.051	-2.5	45.9	0.0	87.8	341.6	3.5	134.5E
SEP 23	21 0	55.2	-18-0-35.6	4.31722	5.04916	19.726	-2.5	45.7	0.0	28.9	341.6	3.7	132.5E
SEP 25	21 0	32.6	-18-2-3.6	4.34038	5.04856	20.375	-2.5	45.4	0.0	329.9	341.6	3.8	130.4E
SEP 27	21 0	13.0	-18-3-18.1	4.36427	5.04796	20.994	-2.5	45.2	0.0	270.9	341.6	4.0	128.4E
SEP 29	20 59	56.5	-18-4-19.1	4.38887	5.04737	21.584	-2.5	44.9	0.0	212.0	341.7	4.2	126.3E
OCT 1	20 59	43.1	-18-5-6.3	4.41412	5.04678	22.142	-2.5	44.7	0.0	153.0	341.7	4.4	124.3E
OCT 3	20 59	32.9	-18-5-39.7	4.44000	5.04618	22.669	-2.5	44.4	0.0	93.9	341.7	4.5	122.3E
OCT 5	20 59	26.0	-18-5-59.3	4.46648	5.04559	23.162	-2.4	44.1	0.0	34.9	341.7	4.7	120.3E
OCT 7	20 59	22.2	-18-6-5.0	4.49350	5.04500	23.623	-2.4	43.9	0.0	335.9	341.7	4.9	118.3E
OCT 9	20 59	21.7	-18-5-57.0	4.52104	5.04441	24.051	-2.4	43.6	0.0	276.8	341.7	5.1	116.4E
OCT 11	20 59	24.4	-18-5-35.3	4.54905	5.04383	24.446	-2.4	43.3	0.0	217.7	341.7	5.2	114.4E
OCT 13	20 59	30.4	-18-4-60.0	4.57750	5.04324	24.809	-2.4	43.1	0.0	158.6	341.7	5.4	112.4E
OCT 15	20 59	39.5	-18-4-11.1	4.60635	5.04266	25.143	-2.4	42.8	0.0	99.5	341.7	5.6	110.5E
OCT 17	20 59	51.8	-18-3-8.7	4.63557	5.04207	25.449	-2.4	42.5	0.0	40.4	341.7	5.8	108.6E
OCT 19	21 0	7.2	-18-1-52.8	4.66513	5.04149	25.727	-2.3	42.3	0.0	341.2	341.6	6.0	106.6E
OCT 21	21 0	25.8	-18-0-23.6	4.69500	5.04091	25.978	-2.3	42.0	0.0	282.1	341.6	6.1	104.7E
OCT 23	21 0	47.5	-17-58-41.2	4.72513	5.04033	26.200	-2.3	41.7	0.0	222.9	341.6	6.3	102.8E
OCT 25	21 1	12.3	-17-56-45.6	4.75551	5.03976	26.392	-2.3	41.5	0.0	163.7	341.6	6.5	100.9E
OCT 27	21 1	40.1	-17-54-36.9	4.78609	5.03918	26.554	-2.3	41.2	0.0	104.5	341.5	6.7	99.1E
OCT 29	21 2	10.9	-17-52-15.1	4.81684	5.03861	26.686	-2.3	40.9	0.0	45.3	341.5	6.8	97.2E
OCT 31	21 2	44.7	-17-49-40.3	4.84773	5.03803	26.787	-2.3	40.7	0.0	346.1	341.4	7.0	95.3E
NOV 2	21 3	21.4	-17-46-52.7	4.87872	5.03746	26.857	-2.2	40.4	0.0	286.9	341.4	7.2	93.5E
NOV 4	21 4	1.1	-17-43-52.3	4.90976	5.03689	26.897	-2.2	40.2	0.0	227.6	341.3	7.4	91.7E
NOV 6	21 4	43.5	-17-40-39.3	4.94084	5.03632	26.907	-2.2	39.9	0.0	168.3	341.3	7.5	89.8E
NOV 8	21 5	28.8	-17-37-14.0	4.97191	5.03575	26.888	-2.2	39.7	0.0	109.1	341.2	7.7	88.0E
NOV 10	21 6	16.7	-17-33-36.4	5.00295	5.03519	26.843	-2.2	39.4	0.0	49.8	341.2	7.9	86.2E
NOV 12	21 7	7.3	-17-29-46.7	5.03392	5.03462	26.772	-2.2	39.2	0.0	350.5	341.1	8.1	84.4E
NOV 14	21 8	0.5	-17-25-45.0	5.06479	5.03406	26.677	-2.2	38.9	0.0	291.2	341.0	8.3	82.6E
NOV 16	21 8	56.2	-17-21-31.3	5.09554	5.03350	26.561	-2.1	38.7	0.0	231.9	341.0	8.4	80.8E
NOV 18	21 9	54.4	-17-17-5.9	5.12614	5.03294	26.421	-2.1	38.5	0.0	172.6	340.9	8.6	79.1E
NOV 20	21 10	55.0	-17-12-28.9	5.15657	5.03238	26.258	-2.1	38.2	0.0	113.2	340.8	8.8	77.3E
NOV 22	21 11	57.9	-17-7-40.5	5.18679	5.03182	26.072	-2.1	38.0	0.1	53.9	340.8	9.0	75.5E
NOV 24	21 13	3.1	-17-2-40.7	5.21679	5.03127	25.861	-2.1	37.8	0.1	354.5	340.7	9.1	73.8E
NOV 26	21 14	10.5	-16-57-29.6	5.24653	5.03071	25.625	-2.1	37.6	0.1	295.2	340.6	9.3	72.0E
NOV 28	21 15	20.2	-16-52-7.3	5.27598	5.03016	25.366	-2.1	37.4	0.1	235.8	340.5	9.5	70.3E
NOV 30	21 16	31.9	-16-46-34.0	5.30512	5.02961	25.082	-2.1	37.2	0.1	176.4	340.4	9.7	68.6E
DEC 2	21 17	45.8	-16-40-49.8	5.33392	5.02906	24.774	-2.1	37.0	0.1	117.0	340.3	9.9	66.9E
DEC 4	21 19	1.6	-16-34-55.0	5.36234	5.02851	24.444	-2.0	36.8	0.1	57.7	340.2	10.0	65.2E
DEC 6	21 20	19.3	-16-28-49.8	5.39038	5.02796	24.092	-2.0	36.6	0.1	358.3	340.2	10.2	63.5E
DEC 8	21 21	38.9	-16-22-34.2	5.41799	5.02742	23.720	-2.0	36.4	0.1	298.9	340.1	10.4	61.8E
DEC 10	21 23	0.2	-16-16-8.5	5.44517	5.02687	23.331	-2.0	36.2	0.1	239.4	340.0	10.6	60.1E
DEC 12	21 24	23.3	-16-9-32.8	5.47189	5.02633	22.926	-2.0	36.0	0.1	180.0	339.9	10.7	58.

Date (0 DT)	RA [Mean] (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	21 39 36.0	-14-55 -1.1	5.70976	5.02099	17.986	-1.9	34.5	0.3	305.7	338.9	12.5	41.9E
JAN 3	21 41 14.2	-14-46-46.3	5.73021	5.02046	17.406	-1.9	34.4	0.3	246.2	338.8	12.7	40.3E
JAN 5	21 42 53.4	-14-38-23.6	5.74997	5.01994	16.813	-1.9	34.3	0.3	186.8	338.7	12.9	38.7E
JAN 7	21 44 33.6	-14-29-53.3	5.76905	5.01942	16.212	-1.9	34.2	0.3	127.3	338.6	13.1	37.1E
JAN 9	21 46 14.8	-14-21-15.4	5.78742	5.01890	15.601	-1.9	34.1	0.3	67.9	338.5	13.2	35.5E
JAN 11	21 47 56.8	-14-12-30.3	5.80509	5.01838	14.983	-1.9	34.0	0.3	8.4	338.4	13.4	33.9E
JAN 13	21 49 39.6	-14 -3-38.2	5.82204	5.01786	14.357	-1.9	33.9	0.4	309.0	338.2	13.6	32.3E
JAN 15	21 51 23.2	-13-54-39.3	5.83825	5.01734	13.722	-1.9	33.8	0.4	249.5	338.1	13.8	30.7E
JAN 17	21 53 7.5	-13-45-33.8	5.85373	5.01683	13.079	-1.9	33.7	0.4	190.1	338.0	14.0	29.1E
JAN 19	21 54 52.5	-13-36-21.8	5.86847	5.01632	12.426	-1.9	33.6	0.4	130.6	337.9	14.1	27.5E
JAN 21	21 56 38.2	-13-27 -3.6	5.88244	5.01581	11.764	-1.9	33.5	0.4	71.2	337.8	14.3	25.9E
JAN 23	21 58 24.4	-13-17-39.3	5.89564	5.01530	11.092	-1.9	33.4	0.5	11.7	337.7	14.5	24.3E
JAN 25	22 0 11.2	-13 -8 -9.1	5.90806	5.01479	10.412	-1.9	33.4	0.5	312.3	337.7	14.7	22.8E
JAN 27	22 1 58.5	-12-58-33.3	5.91969	5.01429	9.723	-1.9	33.3	0.5	252.8	337.6	14.8	21.2E
JAN 29	22 3 46.3	-12-48-52.3	5.93052	5.01378	9.027	-1.9	33.2	0.5	193.4	337.5	15.0	19.6E
JAN 31	22 5 34.4	-12-39 -6.3	5.94055	5.01328	8.324	-1.9	33.2	0.5	133.9	337.4	15.2	18.1E
FEB 2	22 7 22.9	-12-29-15.5	5.94976	5.01278	7.618	-1.9	33.1	0.5	74.5	337.3	15.4	16.5E
FEB 4	22 9 11.7	-12-19-20.1	5.95815	5.01228	6.910	-1.9	33.1	0.6	15.0	337.2	15.6	15.0E
FEB 6	22 11 0.8	-12 -9-20.4	5.96572	5.01178	6.201	-1.9	33.0	0.6	315.6	337.1	15.7	13.4E
FEB 8	22 12 50.1	-11-59-16.7	5.97247	5.01129	5.491	-1.9	33.0	0.6	256.2	337.0	15.9	11.9E
FEB 10	22 14 39.6	-11-49 -9.2	5.97841	5.01079	4.780	-1.9	33.0	0.6	196.7	336.9	16.1	10.3E
FEB 12	22 16 29.2	-11-38-58.3	5.98352	5.01030	4.067	-1.9	32.9	0.6	137.3	336.8	16.3	8.8E
FEB 14	22 18 18.9	-11-28-44.0	5.98780	5.00981	3.353	-1.9	32.9	0.7	77.9	336.7	16.5	7.2E
FEB 16	22 20 8.7	-11-18-26.7	5.99127	5.00932	2.637	-1.9	32.9	0.7	18.4	336.6	16.6	5.7E
FEB 18	22 21 58.6	-11 -8 -6.5	5.99390	5.00883	1.919	-1.9	32.9	0.7	319.0	336.6	16.8	4.2E
FEB 20	22 23 48.4	-10-57-43.7	5.99570	5.00835	1.198	-1.9	32.9	0.7	259.6	336.5	17.0	2.7E
FEB 22	22 25 38.2	-10-47-18.5	5.99667	5.00786	0.476	-1.9	32.9	0.7	200.2	336.4	17.2	1.4E
FEB 24	22 27 28.0	-10-36-51.3	5.99680	5.00738	-0.248	-1.9	32.9	0.8	140.8	336.3	17.4	1.0W
FEB 26	22 29 17.6	-10-26-22.4	5.99609	5.00690	-0.973	-1.9	32.9	0.8	81.4	336.2	17.5	2.2W
FEB 28	22 31 7.1	-10-15-52.1	5.99455	5.00642	-1.698	-1.9	32.9	0.8	22.0	336.2	17.7	3.7W
MAR 2	22 32 56.4	-10 -5-20.6	5.99218	5.00594	-2.418	-1.9	32.9	0.8	322.6	336.1	17.9	5.1W
MAR 4	22 34 45.4	-9-54-48.2	5.98897	5.00547	-3.134	-1.9	32.9	0.8	263.2	336.0	18.1	6.7W
MAR 6	22 36 34.2	-9-44-15.2	5.98494	5.00500	-3.845	-1.9	32.9	0.9	203.8	336.0	18.2	8.2W
MAR 8	22 38 22.6	-9-33-42.0	5.98009	5.00452	-4.549	-1.9	33.0	0.9	144.4	335.9	18.4	9.7W
MAR 10	22 40 10.7	-9-23 -8.7	5.97443	5.00405	-5.249	-1.9	33.0	0.9	85.0	335.8	18.6	11.2W
MAR 12	22 41 58.5	-9-12-35.8	5.96797	5.00359	-5.943	-1.9	33.0	0.9	25.7	335.8	18.8	12.7W
MAR 14	22 43 45.8	-9 -2 -3.4	5.96071	5.00312	-6.633	-1.9	33.1	1.0	326.3	335.7	19.0	14.2W
MAR 16	22 45 32.6	-8-51-31.8	5.95265	5.00266	-7.319	-1.9	33.1	1.0	266.9	335.6	19.1	15.7W
MAR 18	22 47 19.0	-8-41 -1.2	5.94380	5.00219	-8.000	-1.9	33.2	1.0	207.6	335.6	19.3	17.3W
MAR 20	22 49 4.9	-8-30-31.9	5.93417	5.00173	-8.678	-1.9	33.2	1.0	148.2	335.5	19.5	18.8W
MAR 22	22 50 50.3	-8-20 -4.1	5.92376	5.00127	-9.351	-1.9	33.3	1.0	88.9	335.5	19.7	20.3W
MAR 24	22 52 35.1	-8 -9-38.4	5.91257	5.00081	-10.020	-1.9	33.3	1.1	29.5	335.4	19.9	21.8W
MAR 26	22 54 19.3	-7-59-14.9	5.90062	5.00036	-10.684	-1.9	33.4	1.1	330.2	335.3	20.0	23.3W
MAR 28	22 56 2.8	-7-48-54.0	5.88789	4.99991	-11.341	-1.9	33.5	1.1	270.9	335.3	20.2	24.9W
MAR 30	22 57 45.7	-7-38-36.0	5.87442	4.99945	-11.989	-1.9	33.6	1.1	211.6	335.3	20.4	26.4W
APR 1	22 59 27.8	-7-28-21.1	5.86020	4.99900	-12.626	-1.9	33.6	1.1	152.3	335.2	20.6	27.9W
APR 3	23 1 9.1	-7-18 -9.8	5.84526	4.99855	-13.252	-1.9	33.7	1.2	93.0	335.2	20.8	29.4W
APR 5	23 2 49.6	-7 -8 2.3	5.82960	4.99811	-13.866	-1.9	33.8	1.2	33.7	335.1	20.9	30.9W
APR 7	23 4 29.3	-6-57-59.0	5.81323	4.99766	-14.469	-1.9	33.9	1.2	334.4	335.1	21.1	32.5W
APR 9	23 6 8.1	-6-48 -0.2	5.79617	4.99722	-15.063	-1.9	34.0	1.2	275.1	335.0	21.3	34.0W
APR 11	23 7 46.0	-6-38 -6.1	5.77844	4.99678	-15.646	-1.9	34.1	1.3	215.8	335.0	21.5	35.5W
APR 13	23 9 23.0	-6-28-17.0	5.76003	4.99634	-16.219	-1.9	34.2	1.3	156.5	335.0	21.7	37.0W
APR 15	23 10 59.0	-6-18-33.1	5.74097	4.99590	-16.783	-1.9	34.3	1.3	97.3	334.9	21.8	38.6W
APR 17	23 12 34.0	-6 -8-54.8	5.72127	4.99547	-17.337	-1.9	34.5	1.3	38.0	334.9	22.0	40.1W
APR 19	23 14 8.0	-5-59-22.3	5.70093	4.99503	-17.883	-1.9	34.6	1.3	338.8	334.9	22.2	41.6W
APR 21	23 15 40.9	-5-49-56.1	5.67996	4.99460	-18.418	-1.9	34.7	1.4	279.5	334.8	22.4	43.2W
APR 23	23 17 12.7	-5-40-36.5	5.65838	4.99417	-18.942	-2.0	34.8	1.4	220.3	334.8	22.6	44.7W
APR 25	23 18 43.3	-5-31-23.9	5.63621	4.99374	-19.455	-2.0	35.0	1.4	161.1	334.8	22.7	46.3W
APR 27	23 20 12.7	-5-22-18.5	5.61345	4.99332	-19.952	-2.0	35.1	1.4	101.9	334.7	22.9	47.8W
APR 29	23 21 40.8	-5 13-20.7	5.59012	4.99289	-20.434	-2.0	35.3	1.4	42.7	334.7	23.1	49.3W
MAY 1	23 23 7.7	-5 -4-30.8	5.56625	4.99247	-20.899	-2.0	35.4	1.5	343.5	334.7	23.3	50.9W
MAY 3	23 24 33.2	-4-55-49.2	5.54185	4.99205	-21.347	-2.0	35.6	1.5	284.3	334.7	23.5	52.5W
MAY 5	23 25 57.3	-4-47-16.3	5.51694	4.99163	-21.779	-2.0	35.7	1.5	225.1	334.7	23.6	54.0W
MAY 7	23 27 20.0	-4-38-52.4	5.49154	4.99122	-22.195	-2.0	35.9	1.5	165.9	334.6	23.8	55.6W
MAY 9	23 28 41.3	-4-30-37.6	5.46567	4.99080	-22.596	-2.0	36.1	1.5	106.8	334.6	24.0	57.2W
MAY 11	23 30 1.0	-4-22 32.4	5.43935	4.99039	-22.983	-2.0	36.2	1.6	47.6	334.6	24.2	58.7W
MAY 13	23 31 19.3	-4-14-36.9	5.41259	4.98998	-23.354	-2.0	36.4	1.6	348.5	334.6	24.4	60.3W
MAY 15	23 32 36.0	-4 -6-51.6	5.38540	4.98957	-23.711	-2.1	36.6	1.6	289.3	334.6	24.5	61.9W
MAY 17	23 33 51.0	-3-59-16.7	5.35782	4.98916	-24.054	-2.1	36.8	1.6	230.2	334.6	24.7	63.5W
MAY 19	23 35 4.4	-3-51-52.7	5.32984	4.98875	-24.381	-2.1	37.0	1.6	171.1	334.6	24.9	65.1W
MAY 21	23 36 16.1	-3-44-39.9	5.30150	4.98835	-24.691	-2.1	37.2	1.7	112.0	334.5	25.1	66.7W
MAY 23	23 37 26.1	-3-37-38.7	5.27281	4.98795	-24.984	-2.1	37.4	1.7	52.9	334.5	25.3	68.3W
MAY 25	23 38 34.2	-3-30-49.4	5.24379	4.98755	-25.256	-2.1	37.6	1.7	353.8	334.5	25.5	69.9W
MAY 27	23 39 40.5	-3-24-12.3	5.21447	4.98715	-25.507	-2.1	37.8	1.7	294.7	334.5	25.6	71.5W
MAY 29	23 40 44.8	-3-17-47.8	5.18487	4.98676	-25.735	-2.1	38.0	1.7	235.7	334.5	25.8	73.2W
MAY 31	23 41 47.2	-3-11-36.3	5.15503	4.98636	-25.940	-2.1	38.2	1.8	176.6	334.5	26.0	74.8W
JUN 2	23 42 47.6	-3 -5-38.2	5.12496	4.98597	-26.124	-2.2	38.5	1.8	117.6	334.5	26.2	76.5W
JUN 4	23 43 45.9	-2-59-53.8	5.09468	4.98558	-26.287	-2.2	38.7	1.8	58.5	334.5	26.4	78.1W
JUN 6	23 44 42.1	-2-54-23.2	5.06424	4.98519	-26.429	-2.2	38.9	1.8	359.5	334.5	26.5	79.8W
JUN 8	23 45 36.2	-2-49 -6.7	5.03363	4.98481	-26.551	-2.2	39.2	1.8	300.5	334.5	26.7	81.4W
JUN 10	23 46 28.2	-2-44 -4.7	5.00291	4.98443	-26.652	-2.2	39.4	1.9	241.5	334.5	26.9	83.1W
JUN 12	23 47 17.9	-2-39-17.4	4.97207	4.98404	-26.732	-2.2	39.7	1.9	182.5	334.5	27.1	84.8W
JUN 14	23 48 5.4	-2-34-45.2	4.94116	4.98366	-26.792	-2.2	39.9	1.9	123.5	334.5	27.3	86.5W
JUN 16	23 48 50.5	-2-30-28.5	4.91019	4.98328	-26.831	-2.2	40.2	1.9	64.5	334.5	27.4	88.2W
JUN 18	23 49 33.3	-2-25-27.5	4.87918	4.98291	-26.846	-2.3	40.4	1.9	5.6	334.5	27.6	89.9W
JUN 20	23 50 13.6	-2-22-42.7	4.84818	4.98253	-26.837	-2.3	40.7	1.9	306.6	334.5	27.8	

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	23 53 22.2	-2 -6 -7.0	4.66379	4.98033	-26.203	-2.4	42.3	2.0	313.1	334.5	28.9	102.3W	
JUL 4	23 53 44.4	-2 -4 -22.2	4.63364	4.97997	-26.001	-2.4	42.5	2.0	254.3	334.5	29.1	104.1W	
JUL 6	23 54 3.8	-2 -2 -55.3	4.60374	4.97961	-25.773	-2.4	42.8	2.0	195.4	334.5	29.3	105.9W	
JUL 8	23 54 20.5	-2 -1 -46.5	4.57411	4.97926	-25.518	-2.4	43.1	2.1	136.6	334.5	29.4	107.8W	
JUL 10	23 54 34.4	-2 0 -55.8	4.54479	4.97890	-25.238	-2.4	43.4	2.1	77.7	334.5	29.6	109.6W	
JUL 12	23 54 45.5	-2 0 -23.5	4.51582	4.97855	-24.932	-2.4	43.7	2.1	18.9	334.5	29.8	111.5W	
JUL 14	23 54 53.7	-2 0 -9.7	4.48721	4.97820	-24.598	-2.5	43.9	2.1	320.1	334.5	30.0	113.3W	
JUL 16	23 54 59.1	-2 0 -14.5	4.45900	4.97785	-24.237	-2.5	44.2	2.1	261.3	334.5	30.2	115.2W	
JUL 18	23 55 1.6	-2 0 -37.9	4.43123	4.97751	-23.845	-2.5	44.5	2.1	202.5	334.5	30.3	117.1W	
JUL 20	23 55 1.3	-2 -1 -19.9	4.40392	4.97716	-23.422	-2.5	44.8	2.1	143.7	334.5	30.5	119.0W	
JUL 22	23 54 58.0	-2 -2 -20.5	4.37713	4.97682	-22.966	-2.5	45.0	2.1	84.9	334.5	30.7	121.0W	
JUL 24	23 54 51.8	-2 -3 -39.8	4.35088	4.97648	-22.478	-2.5	45.3	2.1	26.2	334.5	30.9	122.9W	
JUL 26	23 54 42.7	-2 -5 -17.6	4.32521	4.97614	-21.958	-2.5	45.6	2.2	327.4	334.5	31.1	124.9W	
JUL 28	23 54 30.8	-2 -7 -13.8	4.30016	4.97581	-21.408	-2.6	45.8	2.2	268.7	334.5	31.2	126.8W	
JUL 30	23 54 15.9	-2 -9 -28.1	4.27577	4.97547	-20.828	-2.6	46.1	2.2	209.9	334.5	31.4	128.8W	
AUG 1	23 53 58.3	-2 -12 -0.2	4.25205	4.97514	-20.220	-2.6	46.4	2.2	151.2	334.5	31.6	130.8W	
AUG 3	23 53 37.9	-2 -14 -49.7	4.22906	4.97481	-19.584	-2.6	46.6	2.2	92.5	334.5	31.8	132.8W	
AUG 5	23 53 14.8	-2 -17 -56.3	4.20682	4.97449	-18.922	-2.6	46.9	2.2	33.8	334.5	32.0	134.8W	
AUG 7	23 52 48.9	-2 -21 -19.7	4.18536	4.97416	-18.233	-2.6	47.1	2.2	335.1	334.5	32.2	136.9W	
AUG 9	23 52 20.4	-2 -24 -59.5	4.16470	4.97384	-17.520	-2.6	47.3	2.2	276.4	334.5	32.3	138.9W	
AUG 11	23 51 49.4	-2 -28 -55.3	4.14489	4.97352	-16.780	-2.6	47.6	2.2	217.7	334.5	32.5	141.0W	
AUG 13	23 51 15.8	-2 -33 -6.5	4.12595	4.97320	-16.014	-2.7	47.8	2.2	159.0	334.5	32.7	143.1W	
AUG 15	23 50 39.7	-2 -37 -32.5	4.10790	4.97288	-15.221	-2.7	48.0	2.2	100.4	334.5	32.9	145.1W	
AUG 17	23 50 1.3	-2 -42 -12.7	4.09079	4.97257	-14.399	-2.7	48.2	2.2	41.7	334.5	33.1	147.2W	
AUG 19	23 49 20.6	-2 -47 -6.5	4.07465	4.97225	-13.551	-2.7	48.4	2.2	343.0	334.5	33.2	149.3W	
AUG 21	23 48 37.6	-2 -52 -13.3	4.05949	4.97194	-12.677	-2.7	48.6	2.2	284.4	334.5	33.4	151.5W	
AUG 23	23 47 52.6	-2 -57 -32.1	4.04537	4.97163	-11.779	-2.7	48.7	2.2	225.7	334.5	33.6	153.6W	
AUG 25	23 47 5.7	-3 -3 -2.2	4.03229	4.97133	-10.859	-2.7	48.9	2.2	167.1	334.5	33.8	155.7W	
AUG 27	23 46 16.9	-3 -8 -42.5	4.02029	4.97102	-9.920	-2.7	49.0	2.2	108.4	334.5	34.0	157.9W	
AUG 29	23 45 26.4	-3 -14 -31.9	4.00938	4.97072	-8.964	-2.7	49.2	2.2	49.8	334.5	34.2	160.0W	
AUG 31	23 44 34.5	-3 -20 -29.6	3.99958	4.97042	-7.993	-2.7	49.3	2.2	351.2	334.5	34.3	162.2W	
SEP 2	23 43 41.1	-3 -26 -34.4	3.99091	4.97012	-7.009	-2.7	49.4	2.2	292.5	334.5	34.5	164.4W	
SEP 4	23 42 46.5	-3 -32 -45.3	3.98339	4.96983	-6.013	-2.8	49.5	2.2	233.9	334.5	34.7	166.5W	
SEP 6	23 41 50.8	-3 -39 -1.4	3.97702	4.96953	-5.007	-2.8	49.6	2.2	175.2	334.5	34.9	168.7W	
SEP 8	23 40 54.2	-3 -45 -21.6	3.97182	4.96924	-3.992	-2.8	49.6	2.2	116.6	334.5	35.1	170.9W	
SEP 10	23 39 56.8	-3 -51 -44.6	3.96780	4.96895	-2.968	-2.8	49.7	2.2	58.0	334.5	35.2	173.0W	
SEP 12	23 38 58.9	-3 -58 -9.4	3.96497	4.96867	-1.935	-2.8	49.7	2.2	359.3	334.5	35.4	175.2W	
SEP 14	23 38 0.4	-4 -4 -34.9	3.96333	4.96838	-0.894	-2.8	49.7	2.2	300.6	334.5	35.6	177.2W	
SEP 16	23 37 1.8	-4 -10 -59.9	3.96290	4.96810	0.154	-2.8	49.7	2.1	242.0	334.5	35.8	178.4W	
SEP 18	23 36 3.0	-4 -17 -23.3	3.96368	4.96782	1.204	-2.8	49.7	2.1	183.3	334.5	36.0	179.4E	
SEP 20	23 35 4.3	-4 -23 -43.8	3.96568	4.96754	2.254	-2.8	49.7	2.1	124.7	334.5	36.2	175.4E	
SEP 22	23 34 5.9	-4 -30 -0.4	3.96889	4.96726	3.302	-2.8	49.7	2.1	66.0	334.6	36.3	173.3E	
SEP 24	23 33 8.0	-4 -36 -11.6	3.97330	4.96699	4.344	-2.8	49.6	2.1	7.3	334.6	36.5	171.1E	
SEP 26	23 32 10.8	-4 -42 -16.4	3.97892	4.96672	5.379	-2.8	49.5	2.1	308.6	334.6	36.7	168.9E	
SEP 28	23 31 14.4	-4 -48 -13.6	3.98572	4.96645	6.403	-2.8	49.5	2.1	249.9	334.6	36.9	166.7E	
SEP 30	23 30 19.1	-4 -54 -2.3	3.99370	4.96618	7.414	-2.7	49.4	2.1	191.2	334.6	37.1	164.5E	
OCT 2	23 29 24.9	-4 -59 -41.3	4.00284	4.96591	8.411	-2.7	49.3	2.1	132.4	334.6	37.3	162.3E	
OCT 4	23 28 32.0	-5 -5 -9.8	4.01312	4.96565	9.392	-2.7	49.1	2.1	73.7	334.6	37.4	160.1E	
OCT 6	23 27 40.6	-5 -10 -26.9	4.02453	4.96539	10.357	-2.7	49.0	2.0	14.9	334.6	37.6	158.0E	
OCT 8	23 26 50.9	-5 -15 -31.6	4.03704	4.96513	11.307	-2.7	48.8	2.0	316.2	334.6	37.8	155.8E	
OCT 10	23 26 2.9	-5 -20 -23.1	4.05064	4.96487	12.240	-2.7	48.7	2.0	257.4	334.7	38.0	153.6E	
OCT 12	23 25 16.8	-5 -25 -0.7	4.06531	4.96462	13.157	-2.7	48.5	2.0	198.6	334.7	38.2	151.4E	
OCT 14	23 24 32.7	-5 -29 -23.7	4.08102	4.96436	14.054	-2.7	48.3	2.0	139.8	334.7	38.3	149.2E	
OCT 16	23 23 50.8	-5 -33 -31.3	4.09776	4.96411	14.930	-2.7	48.1	2.0	80.9	334.7	38.5	147.1E	
OCT 18	23 23 11.2	-5 -37 -22.9	4.11550	4.96387	15.782	-2.7	47.9	2.0	22.1	334.7	38.7	144.9E	
OCT 20	23 22 33.9	-5 -40 -57.8	4.13421	4.96362	16.609	-2.7	47.7	2.0	323.3	334.7	38.9	142.8E	
OCT 22	23 21 59.2	-5 -44 -15.4	4.15386	4.96338	17.408	-2.6	47.5	1.9	264.4	334.7	39.1	140.6E	
OCT 24	23 21 27.1	-5 -47 -15.2	4.17441	4.96313	18.178	-2.6	47.2	1.9	205.5	334.7	39.3	138.5E	
OCT 26	23 20 57.6	-5 -49 -56.8	4.19584	4.96290	18.918	-2.6	47.0	1.9	146.6	334.7	39.4	136.4E	
OCT 28	23 20 30.9	-5 -52 -19.8	4.21810	4.96266	19.626	-2.6	46.7	1.9	87.7	334.7	39.6	134.2E	
OCT 30	23 20 7.1	-5 -54 -23.9	4.24117	4.96242	20.303	-2.6	46.5	1.9	28.7	334.7	39.8	132.1E	
NOV 1	23 19 46.1	-5 -56 -9.0	4.26499	4.96219	20.949	-2.6	46.2	1.9	329.8	334.7	40.0	130.1E	
NOV 3	23 19 28.0	-5 -57 -34.9	4.28955	4.96196	21.563	-2.6	46.0	1.9	270.8	334.8	40.2	128.0E	
NOV 5	23 19 12.9	-5 -58 -41.3	4.31480	4.96173	22.149	-2.6	45.7	1.9	211.8	334.8	40.4	125.9E	
NOV 7	23 19 0.7	-5 -59 -28.1	4.34070	4.96151	22.706	-2.5	45.4	1.9	152.8	334.8	40.5	123.9E	
NOV 9	23 18 51.5	-5 -59 -55.4	4.36724	4.96128	23.234	-2.5	45.1	1.8	93.8	334.8	40.7	121.8E	
NOV 11	23 18 45.4	-6 0 -3.2	4.39437	4.96106	23.733	-2.5	44.9	1.8	34.7	334.8	40.9	119.8E	
NOV 13	23 18 42.3	-5 -59 -51.3	4.42205	4.96084	24.200	-2.5	44.6	1.8	335.7	334.8	41.1	117.8E	
NOV 15	23 18 42.2	-5 -59 -19.7	4.45026	4.96062	24.635	-2.5	44.3	1.8	276.6	334.8	41.3	115.7E	
NOV 17	23 18 45.2	-5 -58 -28.5	4.47895	4.96041	25.038	-2.5	44.0	1.8	217.5	334.8	41.4	113.8E	
NOV 19	23 18 51.2	-5 -57 -17.7	4.50809	4.96020	25.406	-2.4	43.7	1.8	158.4	334.8	41.6	111.8E	
NOV 21	23 19 0.3	-5 -55 -47.4	4.53763	4.95999	25.741	-2.4	43.4	1.8	99.3	334.8	41.8	109.8E	
NOV 23	23 19 12.5	-5 -53 -57.6	4.56754	4.95978	26.041	-2.4	43.2	1.8	40.1	334.8	42.0	107.8E	
NOV 25	23 19 27.7	-5 -51 -48.8	4.59778	4.95957	26.308	-2.4	42.9	1.8	341.0	334.8	42.2	105.9E	
NOV 27	23 19 45.8	-5 -49 -21.0	4.62830	4.95937	26.542	-2.4	42.6	1.8	281.8	334.7	42.4	103.9E	
NOV 29	23 20 6.9	-5 -46 -34.6	4.65908	4.95917	26.743	-2.4	42.3	1.8	222.6	334.7	42.5	102.0E	
DEC 1	23 20 30.9	-5 -43 -29.7	4.69007	4.95897	26.914	-2.4	42.0	1.8	163.4	334.7	42.7	100.1E	
DEC 3	23 20 57.8	-5 -40 -6.7	4.72125	4.95877	27.057	-2.3	41.8	1.8	104.2	334.7	42.9	98.2E	
DEC 5	23 21 27.5	-5 -36 -25.7	4.75257	4.95858	27.172	-2.3	41.5	1.8	45.0	334.7	43.1	96.3E	
DEC 7	23 21 59.9	-5 -32 -27.2	4.78401	4.95839	27.261	-2.3	41.2	1.8	345.8	334.7	43.3	94.4E	
DEC 9	23 22 35.1	-5 -28 -11.5	4.81554	4.95820	27.323	-2.3	40.9	1.8	286.5	334.7	43.5	92.6E	
DEC 11	23 23 13.0	-5 -23 -38.8	4.84712	4.95801	27.356	-2.3	40.7	1.8	227.3	334.7	43.6	90.7E	
DEC 13	23 23 53.5	-5 -18 -49.4	4.87872	4.95782	27.361	-2.3	40.4	1.8	168.0	334.7	43.8	88.9E	
DEC 15	23 24 36.6	-5 -13 -43.5	4.91032	4.95764	27.337	-2.3	40.1	1.8	108.7	334.7	44.0	87.0E	
DEC 17	23 25 22.3	-5 -8 -21.4	4.94186	4.95746	27.283	-2.2	39.9	1.8	49.4	334.7	44.2	85.2E	
DEC 19	23 26 10.6	-5 -2 -43.5	4.97333										

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	23 32 53.3	-4-16-25.2	5.18880	4.95609	25.897	-2.1	38.0	1.8	294.7	334.6	45.7	71.0E	
JAN 4	23 33 59.5	-4 -8-53.9	5.21856	4.95593	25.624	-2.1	37.8	1.8	235.3	334.6	45.8	69.2E	
JAN 6	23 35 7.6	-4 -1-10.1	5.24799	4.95577	25.331	-2.1	37.6	1.8	175.9	334.6	46.0	67.5E	
JAN 8	23 36 17.6	-3-53-14.2	5.27707	4.95562	25.017	-2.1	37.4	1.8	116.5	334.5	46.2	65.8E	
JAN 10	23 37 29.4	-3-45 -6.4	5.30577	4.95546	24.682	-2.1	37.2	1.8	57.1	334.5	46.4	64.1E	
JAN 12	23 38 43.1	-3-36-47.1	5.33408	4.95531	24.326	-2.1	37.0	1.8	357.7	334.5	46.6	62.4E	
JAN 14	23 39 58.6	-3-28-16.5	5.36197	4.95516	23.950	-2.1	36.8	1.8	298.3	334.5	46.8	60.7E	
JAN 16	23 41 15.8	-3-19-35.1	5.38940	4.95502	23.552	-2.1	36.6	1.8	238.9	334.5	46.9	59.0E	
JAN 18	23 42 34.6	-3-10-43.3	5.41637	4.95487	23.135	-2.1	36.4	1.8	179.5	334.5	47.1	57.3E	
JAN 20	23 43 55.1	-3 -1-41.3	5.44284	4.95473	22.698	-2.0	36.2	1.8	120.0	334.5	47.3	55.7E	
JAN 22	23 45 17.0	-2-52-29.7	5.46880	4.95459	22.242	-2.0	36.0	1.9	60.6	334.5	47.5	54.0E	
JAN 24	23 46 40.5	-2-43 -8.8	5.49422	4.95445	21.771	-2.0	35.9	1.9	1.2	334.5	47.7	52.3E	
JAN 26	23 48 5.4	-2-33-38.9	5.51909	4.95432	21.285	-2.0	35.7	1.9	301.7	334.5	47.8	50.7E	
JAN 28	23 49 31.6	-2-24 -0.3	5.54339	4.95418	20.786	-2.0	35.6	1.9	242.3	334.5	48.0	49.1E	
JAN 30	23 50 59.2	-2-14-13.6	5.56711	4.95405	20.275	-2.0	35.4	1.9	182.8	334.5	48.2	47.4E	
FEB 1	23 52 28.0	-2 -4-19.0	5.59023	4.95393	19.753	-2.0	35.3	1.9	123.4	334.5	48.4	45.8E	
FEB 3	23 53 58.0	-1-54-17.0	5.61274	4.95380	19.219	-2.0	35.1	1.9	63.9	334.5	48.6	44.2E	
FEB 5	23 55 29.2	-1-44 -7.8	5.63462	4.95368	18.673	-2.0	35.0	1.9	4.5	334.5	48.8	42.6E	
FEB 7	23 57 1.6	-1-33-51.7	5.65587	4.95355	18.114	-2.0	34.9	1.9	305.0	334.5	48.9	41.0E	
FEB 9	23 58 35.0	-1-23-29.0	5.67647	4.95344	17.543	-2.0	34.7	1.9	245.6	334.5	49.1	39.4E	
FEB 11	0 0 9.4	-1-12-59.9	5.69640	4.95332	16.958	-2.0	34.6	2.0	186.1	334.5	49.3	37.8E	
FEB 13	0 1 44.9	-1 -2-24.9	5.71564	4.95320	16.361	-2.0	34.5	2.0	126.6	334.5	49.5	36.2E	
FEB 15	0 3 21.4	0-51-44.3	5.73419	4.95309	15.752	-2.0	34.4	2.0	67.2	334.5	49.7	34.6E	
FEB 17	0 4 58.7	0-40-58.5	5.75203	4.95298	15.131	-1.9	34.3	2.0	7.7	334.5	49.9	33.0E	
FEB 19	0 6 36.9	0-30 -7.8	5.76915	4.95288	14.500	-1.9	34.2	2.0	308.3	334.5	50.0	31.5E	
FEB 21	0 8 15.9	0-19-12.5	5.78553	4.95277	13.861	-1.9	34.1	2.0	248.8	334.5	50.2	29.9E	
FEB 23	0 9 55.7	0 -8-13.0	5.80117	4.95267	13.216	-1.9	34.0	2.0	189.3	334.6	50.4	28.3E	
FEB 25	0 11 36.2	0 2 50.5	5.81606	4.95257	12.565	-1.9	33.9	2.0	129.9	334.6	50.6	26.8E	
FEB 27	0 13 17.4	0 13 57.5	5.83020	4.95247	11.910	-1.9	33.8	2.1	70.4	334.6	50.8	25.2E	
MAR 1	0 14 59.2	0 25 7.6	5.84357	4.95237	11.252	-1.9	33.7	2.1	11.0	334.6	51.0	23.7E	
MAR 3	0 16 41.5	0 36 20.6	5.85619	4.95228	10.588	-1.9	33.7	2.1	311.5	334.6	51.1	22.1E	
MAR 5	0 18 24.5	0 47 36.2	5.86803	4.95219	9.920	-1.9	33.6	2.1	252.0	334.7	51.3	20.6E	
MAR 7	0 20 8.0	0 58 54.2	5.87911	4.95210	9.246	-1.9	33.5	2.1	192.6	334.7	51.5	19.1E	
MAR 9	0 21 52.0	1 10 14.4	5.88940	4.95201	8.567	-1.9	33.5	2.1	133.1	334.7	51.7	17.6E	
MAR 11	0 23 36.4	1 21 36.3	5.89890	4.95193	7.882	-1.9	33.4	2.1	73.7	334.7	51.9	16.0E	
MAR 13	0 25 21.3	1 32 59.8	5.90761	4.95185	7.192	-1.9	33.4	2.2	14.2	334.8	52.1	14.5E	
MAR 15	0 27 6.6	1 44 24.6	5.91551	4.95177	6.497	-1.9	33.3	2.2	314.8	334.8	52.2	13.0E	
MAR 17	0 28 52.3	1 55 50.2	5.92261	4.95169	5.796	-1.9	33.3	2.2	255.4	334.8	52.4	11.5E	
MAR 19	0 30 38.2	2 7 16.3	5.92890	4.95162	5.093	-1.9	33.3	2.2	195.9	334.9	52.6	10.0E	
MAR 21	0 32 24.4	2 18 42.8	5.93438	4.95154	4.388	-1.9	33.2	2.2	136.5	334.9	52.8	8.5E	
MAR 23	0 34 10.9	2 30 9.3	5.93904	4.95147	3.683	-1.9	33.2	2.2	77.0	334.9	53.0	7.0E	
MAR 25	0 35 57.5	2 41 35.5	5.94289	4.95141	2.981	-1.9	33.2	2.2	17.6	335.0	53.2	5.5E	
MAR 27	0 37 44.3	2 53 1.0	5.94593	4.95134	2.280	-1.9	33.2	2.3	318.2	335.0	53.3	4.1E	
MAR 29	0 39 31.2	3 4 25.6	5.94816	4.95128	1.582	-1.9	33.1	2.3	258.8	335.0	53.5	2.7E	
MAR 31	0 41 18.2	3 15 48.9	5.94959	4.95122	0.885	-1.9	33.1	2.3	199.3	335.1	53.7	1.4E	
APR 2	0 43 5.3	3 27 10.8	5.95021	4.95116	0.190	-1.9	33.1	2.3	139.9	335.1	53.9	1.2W	
APR 4	0 44 52.4	3 38 31.1	5.95003	4.95110	-0.505	-1.9	33.1	2.3	80.5	335.2	54.1	2.3W	
APR 6	0 46 39.5	3 49 49.5	5.94905	4.95105	-1.200	-1.9	33.1	2.3	21.1	335.2	54.3	3.7W	
APR 8	0 48 26.6	4 1 5.9	5.94726	4.95100	-1.894	-1.9	33.1	2.4	321.7	335.3	54.4	5.1W	
APR 10	0 50 13.6	4 12 19.8	5.94467	4.95095	-2.588	-1.9	33.2	2.4	262.3	335.3	54.6	6.6W	
APR 12	0 52 0.6	4 23 31.1	5.94128	4.95090	-3.281	-1.9	33.2	2.4	202.9	335.4	54.8	8.0W	
APR 14	0 53 47.4	4 34 39.4	5.93710	4.95086	-3.973	-1.9	33.2	2.4	143.5	335.4	55.0	9.5W	
APR 16	0 55 34.0	4 45 44.5	5.93211	4.95082	-4.663	-1.9	33.2	2.4	84.1	335.5	55.2	11.0W	
APR 18	0 57 20.5	4 56 46.2	5.92633	4.95078	-5.348	-1.9	33.3	2.4	24.8	335.6	55.4	12.5W	
APR 20	0 59 6.7	5 7 44.1	5.91976	4.95074	-6.028	-1.9	33.3	2.5	325.4	335.6	55.5	13.9W	
APR 22	1 0 52.6	5 18 38.1	5.91241	4.95071	-6.700	-1.9	33.3	2.5	266.0	335.7	55.7	15.4W	
APR 24	1 2 38.2	5 29 27.7	5.90428	4.95067	-7.364	-1.9	33.4	2.5	206.7	335.7	55.9	16.9W	
APR 26	1 4 23.4	5 40 12.7	5.89540	4.95064	-8.021	-1.9	33.4	2.5	147.3	335.8	56.1	18.4W	
APR 28	1 6 8.3	5 50 52.9	5.88576	4.95061	-8.672	-1.9	33.5	2.5	88.0	335.9	56.3	19.8W	
APR 30	1 7 52.7	6 1 28.1	5.87537	4.95059	-9.316	-1.9	33.6	2.5	28.6	335.9	56.5	21.3W	
MAY 2	1 9 36.7	6 11 58.2	5.86424	4.95057	-9.955	-1.9	33.6	2.5	329.3	336.0	56.6	22.8W	
MAY 4	1 11 20.3	6 22 22.9	5.85238	4.95055	-10.587	-1.9	33.7	2.6	270.0	336.1	56.8	24.3W	
MAY 6	1 13 3.3	6 32 42.0	5.83979	4.95053	-11.215	-1.9	33.8	2.6	210.6	336.1	57.0	25.7W	
MAY 8	1 14 45.8	6 42 55.3	5.82647	4.95051	-11.837	-1.9	33.8	2.6	151.3	336.2	57.2	27.2W	
MAY 10	1 16 27.7	6 53 2.5	5.81244	4.95050	-12.454	-1.9	33.9	2.6	92.0	336.3	57.4	28.7W	
MAY 12	1 18 9.0	7 3 3.4	5.79770	4.95049	-13.065	-1.9	34.0	2.6	32.7	336.3	57.6	30.2W	
MAY 14	1 19 49.6	7 12 57.7	5.78226	4.95048	-13.668	-1.9	34.1	2.6	333.4	336.4	57.7	31.6W	
MAY 16	1 21 29.5	7 22 45.3	5.76613	4.95047	-14.263	-1.9	34.2	2.7	274.1	336.5	57.9	33.1W	
MAY 18	1 23 8.7	7 32 25.9	5.74932	4.95047	-14.846	-1.9	34.3	2.7	214.8	336.6	58.1	34.6W	
MAY 20	1 24 47.1	7 41 59.1	5.73184	4.95047	-15.416	-2.0	34.4	2.7	155.5	336.6	58.3	36.1W	
MAY 22	1 26 24.7	7 51 24.8	5.71371	4.95047	-15.975	-2.0	34.5	2.7	96.3	336.7	58.5	37.6W	
MAY 24	1 28 1.4	8 0 42.7	5.69495	4.95047	-16.521	-2.0	34.6	2.7	37.0	336.8	58.7	39.1W	
MAY 26	1 29 37.1	8 9 52.5	5.67555	4.95048	-17.055	-2.0	34.7	2.7	337.8	336.9	58.8	40.6W	
MAY 28	1 31 11.9	8 18 54.2	5.65555	4.95048	-17.579	-2.0	34.9	2.7	278.5	336.9	59.0	42.1W	
MAY 30	1 32 45.8	8 27 47.6	5.63495	4.95049	-18.093	-2.0	35.0	2.8	219.3	337.0	59.2	43.6W	
JUN 1	1 34 18.6	8 36 32.6	5.61376	4.95051	-18.595	-2.0	35.1	2.8	160.0	337.1	59.4	45.1W	
JUN 3	1 35 50.4	8 45 8.8	5.59199	4.95052	-19.088	-2.0	35.3	2.8	100.8	337.2	59.6	46.6W	
JUN 5	1 37 21.0	8 53 36.2	5.56967	4.95054	-19.571	-2.0	35.4	2.8	41.6	337.3	59.8	48.1W	
JUN 7	1 38 50.6	9 1 54.4	5.54679	4.95056	-20.043	-2.0	35.5	2.8	342.4	337.3	59.9	49.7W	
JUN 9	1 40 18.9	9 10 3.2	5.52337	4.95058	-20.504	-2.0	35.7	2.8	283.2	337.4	60.1	51.2W	
JUN 11	1 41 45.9	9 18 2.4	5.49942	4.95060	-20.953	-2.0	35.8	2.8	224.0	337.5	60.3	52.7W	
JUN 13	1 43 11.7	9 25 51.8	5.47497	4.95063	-21.387	-2.0	36.0	2.9	164.8	337.6	60.5	54.2W	
JUN 15	1 44 36.1	9 33 31.3	5.45002	4.95066	-21.804	-2.0	36.2	2.9	105.7	337.6	60.7	55.8W	
JUN 17	1 45 59.1	9 41 0.5	5.42461	4.95069	-22.204	-2.1	36.3	2.9	46.5	337.7	60.9	57.3W	
JUN 19	1 47 20.6	9 48 19.1	5.39874	4.95072	-22.587	-2.1	36.5	2.9	347.3	337.8	61.0	58.9W	
JUN 21	1 48 40.6	9 55 26.9	5.37243	4.95076	-22.952	-2.1	36.7	2.9	288.2	337.9	61.2	60.4W	
JUN 23	1 49 59.0	10 2 23.8	5.34572	4.95080	-23.300	-2.1	3						

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	1 54 56.2	10 28 19.4	5.23512	4.95098	-24.533	-2.1	37.7	3.0	352.6	338.2	62.1	68.3W	
JUL 3	1 56 6.1	10 34 19.4	5.20662	4.95103	-24.802	-2.1	37.9	3.0	293.5	338.3	62.3	69.9W	
JUL 5	1 57 14.2	10 40 7.3	5.17783	4.95108	-25.055	-2.1	38.1	3.0	234.4	338.4	62.5	71.6W	
JUL 7	1 58 20.3	10 45 43.0	5.14875	4.95114	-25.290	-2.2	38.3	3.0	175.4	338.4	62.7	73.2W	
JUL 9	1 59 24.5	10 51 6.3	5.11941	4.95119	-25.506	-2.2	38.5	3.0	116.3	338.5	62.9	74.8W	
JUL 11	2 0 26.6	10 56 17.0	5.08984	4.95125	-25.702	-2.2	38.7	3.0	57.3	338.6	63.1	76.4W	
JUL 13	2 1 26.6	11 1 15.0	5.06005	4.95131	-25.874	-2.2	39.0	3.1	358.2	338.6	63.3	78.1W	
JUL 15	2 2 24.4	11 5 59.8	5.03007	4.95138	-26.023	-2.2	39.2	3.1	299.2	338.7	63.4	79.8W	
JUL 17	2 3 20.0	11 10 31.3	4.99994	4.95145	-26.148	-2.2	39.4	3.1	240.2	338.7	63.6	81.4W	
JUL 19	2 4 13.3	11 14 49.2	4.96967	4.95151	-26.249	-2.2	39.7	3.1	181.2	338.8	63.8	83.1W	
JUL 21	2 5 4.3	11 18 53.5	4.93931	4.95159	-26.326	-2.2	39.9	3.1	122.2	338.8	64.0	84.8W	
JUL 23	2 5 52.9	11 22 44.0	4.90886	4.95166	-26.381	-2.3	40.2	3.1	63.2	338.9	64.2	86.5W	
JUL 25	2 6 39.0	11 26 20.6	4.87837	4.95174	-26.414	-2.3	40.4	3.1	4.2	338.9	64.4	88.2W	
JUL 27	2 7 22.7	11 29 43.3	4.84785	4.95182	-26.424	-2.3	40.7	3.1	305.3	339.0	64.5	89.9W	
JUL 29	2 8 3.8	11 32 51.7	4.81733	4.95190	-26.411	-2.3	40.9	3.2	246.3	339.0	64.7	91.7W	
JUL 31	2 8 42.4	11 35 45.8	4.78685	4.95198	-26.376	-2.3	41.2	3.2	187.4	339.1	64.9	93.4W	
AUG 2	2 9 18.3	11 38 25.2	4.75641	4.95206	-26.317	-2.3	41.4	3.2	128.4	339.1	65.1	95.2W	
AUG 4	2 9 51.5	11 40 49.9	4.72606	4.95215	-26.234	-2.3	41.7	3.2	69.5	339.2	65.3	96.9W	
AUG 6	2 10 22.0	11 42 59.8	4.69581	4.95224	-26.124	-2.4	42.0	3.2	10.6	339.2	65.5	98.7W	
AUG 8	2 10 49.6	11 44 54.7	4.66572	4.95234	-25.986	-2.4	42.3	3.2	311.7	339.2	65.6	100.5W	
AUG 10	2 11 14.5	11 46 34.3	4.63579	4.95243	-25.819	-2.4	42.5	3.2	252.9	339.2	65.8	102.3W	
AUG 12	2 11 36.3	11 47 58.6	4.60608	4.95253	-25.620	-2.4	42.8	3.2	194.0	339.3	66.0	104.2W	
AUG 14	2 11 55.3	11 49 7.3	4.57662	4.95263	-25.390	-2.4	43.1	3.2	135.1	339.3	66.2	106.0W	
AUG 16	2 12 11.2	11 50 0.4	4.54743	4.95273	-25.130	-2.4	43.4	3.2	76.3	339.3	66.4	107.9W	
AUG 18	2 12 24.2	11 50 37.8	4.51857	4.95283	-24.841	-2.4	43.6	3.3	17.4	339.3	66.5	109.7W	
AUG 20	2 12 34.1	11 50 59.6	4.49006	4.95294	-24.522	-2.5	43.9	3.3	318.6	339.3	66.7	111.6W	
AUG 22	2 12 41.1	11 51 5.8	4.46193	4.95305	-24.174	-2.5	44.2	3.3	259.8	339.3	66.9	113.5W	
AUG 24	2 12 44.9	11 50 56.3	4.43422	4.95316	-23.798	-2.5	44.5	3.3	201.0	339.3	67.1	115.4W	
AUG 26	2 12 45.7	11 50 31.2	4.40696	4.95327	-23.394	-2.5	44.7	3.3	142.2	339.3	67.3	117.3W	
AUG 28	2 12 43.4	11 49 50.4	4.38019	4.95339	-22.961	-2.5	45.0	3.3	83.4	339.3	67.5	119.3W	
AUG 30	2 12 38.1	11 48 54.0	4.35393	4.95351	-22.500	-2.5	45.3	3.3	24.7	339.3	67.6	121.2W	
SEP 1	2 12 29.6	11 47 41.9	4.32822	4.95363	-22.009	-2.5	45.5	3.3	325.9	339.3	67.8	123.2W	
SEP 3	2 12 18.1	11 46 14.3	4.30309	4.95375	-21.487	-2.6	45.8	3.3	267.1	339.3	68.0	125.2W	
SEP 5	2 12 3.5	11 44 31.4	4.27859	4.95388	-20.933	-2.6	46.1	3.3	208.4	339.3	68.2	127.2W	
SEP 7	2 11 45.8	11 42 33.0	4.25474	4.95400	-20.344	-2.6	46.3	3.3	149.7	339.3	68.4	129.2W	
SEP 9	2 11 25.1	11 40 19.5	4.23160	4.95413	-19.723	-2.6	46.6	3.3	91.0	339.3	68.6	131.2W	
SEP 11	2 11 1.4	11 37 50.8	4.20919	4.95427	-19.068	-2.6	46.8	3.3	32.2	339.2	68.7	133.3W	
SEP 13	2 10 34.7	11 35 7.4	4.18756	4.95440	-18.382	-2.6	47.1	3.3	333.5	339.2	68.9	135.4W	
SEP 15	2 10 5.2	11 32 9.6	4.16674	4.95454	-17.666	-2.6	47.3	3.3	274.9	339.2	69.1	137.4W	
SEP 17	2 9 32.9	11 28 57.9	4.14675	4.95468	-16.922	-2.6	47.5	3.3	216.2	339.1	69.3	139.5W	
SEP 19	2 8 57.9	11 25 32.7	4.12765	4.95482	-16.151	-2.7	47.8	3.4	157.5	339.1	69.5	141.6W	
SEP 21	2 8 20.2	11 21 54.3	4.10945	4.95496	-15.353	-2.7	48.0	3.4	98.8	339.1	69.7	143.7W	
SEP 23	2 7 40.0	11 18 3.3	4.09219	4.95511	-14.531	-2.7	48.2	3.4	40.2	339.0	69.8	145.9W	
SEP 25	2 6 57.4	11 14 0.1	4.07589	4.95526	-13.686	-2.7	48.4	3.4	341.5	339.0	70.0	148.0W	
SEP 27	2 6 12.4	11 9 45.3	4.06058	4.95541	-12.817	-2.7	48.6	3.4	282.8	338.9	70.2	150.2W	
SEP 29	2 5 25.2	11 5 19.4	4.04628	4.95556	-11.924	-2.7	48.7	3.4	224.2	338.9	70.4	152.3W	
OCT 1	2 4 35.9	11 0 43.3	4.03304	4.95572	-11.008	-2.7	48.9	3.4	165.6	338.8	70.6	154.5W	
OCT 3	2 3 44.6	10 55 57.4	4.02086	4.95587	-10.067	-2.7	49.0	3.3	106.9	338.8	70.8	156.7W	
OCT 5	2 2 51.4	10 51 2.4	4.00979	4.95603	-9.104	-2.7	49.2	3.3	48.3	338.7	70.9	158.9W	
OCT 7	2 1 56.6	10 45 59.1	3.99983	4.95620	-8.119	-2.7	49.3	3.3	349.6	338.6	71.1	161.1W	
OCT 9	2 1 0.2	10 40 48.4	3.99103	4.95636	-7.115	-2.8	49.4	3.3	291.0	338.6	71.3	163.3W	
OCT 11	2 0 2.5	10 35 31.1	3.98340	4.95653	-6.095	-2.8	49.5	3.3	232.4	338.5	71.5	165.5W	
OCT 13	1 59 3.6	10 30 8.2	3.97695	4.95670	-5.062	-2.8	49.6	3.3	173.7	338.5	71.7	167.7W	
OCT 15	1 58 3.7	10 24 40.9	3.97171	4.95687	-4.018	-2.8	49.6	3.3	115.1	338.4	71.9	170.0W	
OCT 17	1 57 3.0	10 19 10.0	3.96767	4.95704	-2.965	-2.8	49.7	3.3	56.4	338.3	72.0	172.2W	
OCT 19	1 56 1.7	10 13 36.7	3.96486	4.95722	-1.907	-2.8	49.7	3.3	357.8	338.3	72.2	174.4W	
OCT 21	1 54 60.0	10 8 1.9	3.96327	4.95740	-0.845	-2.8	49.7	3.3	299.1	338.2	72.4	176.5W	
OCT 23	1 53 58.0	10 2 26.5	3.96290	4.95758	0.219	-2.8	49.7	3.3	240.5	338.2	72.6	178.2W	
OCT 25	1 52 56.0	9 56 51.8	3.96377	4.95776	1.283	-2.8	49.7	3.3	181.8	338.1	72.8	177.9E	
OCT 27	1 51 54.1	9 51 18.7	3.96586	4.95794	2.347	-2.8	49.7	3.3	123.2	338.0	73.0	176.1E	
OCT 29	1 50 52.6	9 45 48.3	3.96919	4.95813	3.410	-2.8	49.7	3.3	64.5	338.0	73.1	173.9E	
OCT 31	1 49 51.5	9 40 21.6	3.97374	4.95832	4.472	-2.8	49.6	3.3	5.8	337.9	73.3	171.7E	
NOV 2	1 48 51.2	9 34 59.5	3.97951	4.95851	5.531	-2.8	49.5	3.2	307.1	337.9	73.5	169.5E	
NOV 4	1 47 51.6	9 29 43.0	3.98651	4.95871	6.583	-2.8	49.5	3.2	248.4	337.8	73.7	167.2E	
NOV 6	1 46 53.2	9 24 33.3	3.99472	4.95890	7.626	-2.8	49.4	3.2	189.7	337.8	73.9	165.0E	
NOV 8	1 45 56.0	9 19 31.5	4.00412	4.95910	8.658	-2.7	49.2	3.2	131.0	337.7	74.1	162.7E	
NOV 10	1 45 0.2	9 14 38.5	4.01471	4.95930	9.674	-2.7	49.1	3.2	72.2	337.7	74.2	160.5E	
NOV 12	1 44 6.0	9 9 55.5	4.02646	4.95951	10.672	-2.7	49.0	3.2	13.5	337.6	74.4	158.3E	
NOV 14	1 43 13.6	9 5 23.3	4.03935	4.95971	11.651	-2.7	48.8	3.2	314.7	337.6	74.6	156.0E	
NOV 16	1 42 23.1	9 1 2.8	4.05336	4.95992	12.609	-2.7	48.6	3.2	255.9	337.5	74.8	153.8E	
NOV 18	1 41 34.7	8 56 54.7	4.06847	4.96013	13.543	-2.7	48.5	3.2	197.1	337.5	75.0	151.6E	
NOV 20	1 40 48.4	8 52 59.8	4.08464	4.96034	14.452	-2.7	48.3	3.1	138.3	337.4	75.2	149.4E	
NOV 22	1 40 4.4	8 49 18.9	4.10184	4.96056	15.336	-2.7	48.1	3.1	79.5	337.4	75.3	147.1E	
NOV 24	1 39 22.9	8 45 52.6	4.12006	4.96077	16.196	-2.7	47.9	3.1	20.7	337.4	75.5	144.9E	
NOV 26	1 38 43.8	8 42 41.6	4.13925	4.96099	17.031	-2.7	47.6	3.1	321.8	337.3	75.7	142.8E	
NOV 28	1 38 7.4	8 39 46.1	4.15939	4.96121	17.842	-2.6	47.4	3.1	262.9	337.3	75.9	140.6E	
NOV 30	1 37 33.7	8 37 6.8	4.18045	4.96144	18.628	-2.6	47.2	3.1	204.1	337.3	76.1	138.4E	
DEC 2	1 37 2.7	8 34 44.0	4.20241	4.96166	19.385	-2.6	46.9	3.1	145.1	337.2	76.2	136.3E	
DEC 4	1 36 34.6	8 32 38.3	4.22522	4.96189	20.113	-2.6	46.7	3.1	86.2	337.2	76.4	134.1E	
DEC 6	1 36 9.4	8 30 50.1	4.24886	4.96212	20.810	-2.6	46.4	3.0	27.3	337.2	76.6	132.0E	
DEC 8	1 35 47.2	8 29 19.7	4.27328	4.96235	21.473	-2.6	46.1	3.0	328.3	337.2	76.8	129.8E	
DEC 10	1 35 28.1	8 28 7.5	4.29845	4.96259	22.103	-2.6	45.9	3.0	269.4	337.2	77.0	127.7E	
DEC 12	1 35 12.0	8 27 13.6	4.32433	4.96282	22.699	-2.5	45.6	3.0	210.4	337.1	77.2	125.6E	
DEC 14	1 34 59.1	8 26 38.1	4.35088	4.96306	23.259	-2.5	45.3	3.0	151.4	337.1	77.3	123.5E	
DEC 16	1 34 49.3	8 26 21.0	4.37805	4.96330	23.784	-2.5	45.0	3.0	92.3	337.1	77.5	121.5E	
DEC 18	1 34 42.7	8 26 22.5	4.40581	4.96355	24.275	-2.5	44.7	3.0	33.3				

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	1 35 24.0	8 35 4.6	4.61337	4.96532	26.815	-2.4	42.7	2.9	339.5	337.2	79.0	105.4E	
JAN 3	1 35 42.3	8 37 30.4	4.64449	4.96558	27.051	-2.4	42.4	2.9	280.4	337.2	79.2	103.4E	
JAN 5	1 36 3.6	8 40 13.5	4.67585	4.96584	27.254	-2.4	42.2	2.9	221.2	337.2	79.3	101.5E	
JAN 7	1 36 27.9	8 43 13.6	4.70744	4.96611	27.424	-2.3	41.9	2.9	162.0	337.2	79.5	99.6E	
JAN 9	1 36 55.2	8 46 30.3	4.73919	4.96637	27.560	-2.3	41.6	2.9	102.8	337.2	79.7	97.6E	
JAN 11	1 37 25.4	8 50 3.4	4.77109	4.96664	27.664	-2.3	41.3	2.9	43.5	337.3	79.9	95.7E	
JAN 13	1 37 58.5	8 53 52.4	4.80309	4.96692	27.735	-2.3	41.0	2.9	344.3	337.3	80.1	93.8E	
JAN 15	1 38 34.4	8 57 56.9	4.83515	4.96719	27.776	-2.3	40.8	2.9	285.1	337.3	80.3	92.0E	
JAN 17	1 39 13.1	9 2 16.7	4.86725	4.96747	27.788	-2.3	40.5	2.8	225.8	337.4	80.4	90.1E	
JAN 19	1 39 54.5	9 6 51.3	4.89934	4.96775	27.773	-2.3	40.2	2.8	166.5	337.4	80.6	88.3E	
JAN 21	1 40 38.6	9 11 40.2	4.93140	4.96803	27.732	-2.2	40.0	2.8	107.2	337.4	80.8	86.4E	
JAN 23	1 41 25.3	9 16 43.0	4.96340	4.96831	27.668	-2.2	39.7	2.8	47.9	337.5	81.0	84.6E	
JAN 25	1 42 14.5	9 21 59.2	4.99531	4.96860	27.579	-2.2	39.5	2.8	348.6	337.5	81.2	82.8E	
JAN 27	1 43 6.2	9 27 28.4	5.02710	4.96888	27.465	-2.2	39.2	2.8	289.3	337.6	81.4	81.0E	
JAN 29	1 44 0.4	9 33 10.2	5.05875	4.96917	27.326	-2.2	39.0	2.8	230.0	337.6	81.5	79.2E	
JAN 31	1 44 57.0	9 39 4.4	5.09022	4.96947	27.161	-2.2	38.7	2.8	170.6	337.7	81.7	77.4E	
FEB 2	1 45 56.0	9 45 10.5	5.12149	4.96976	26.970	-2.2	38.5	2.8	111.3	337.7	81.9	75.6E	
FEB 4	1 46 57.3	9 51 28.2	5.15252	4.97006	26.754	-2.2	38.3	2.8	51.9	337.8	82.1	73.9E	
FEB 6	1 48 0.8	9 57 56.8	5.18328	4.97036	26.513	-2.1	38.0	2.8	352.6	337.8	82.3	72.1E	
FEB 8	1 49 6.5	10 4 36.0	5.21376	4.97066	26.248	-2.1	37.8	2.8	293.2	337.9	82.4	70.4E	
FEB 10	1 50 14.4	10 11 25.3	5.24391	4.97096	25.959	-2.1	37.6	2.8	233.8	338.0	82.6	68.7E	
FEB 12	1 51 24.3	10 18 24.3	5.27372	4.97126	25.648	-2.1	37.4	2.8	174.4	338.0	82.8	67.0E	
FEB 14	1 52 36.2	10 25 32.6	5.30316	4.97157	25.317	-2.1	37.2	2.8	115.0	338.1	83.0	65.3E	
FEB 16	1 53 50.2	10 32 49.7	5.33220	4.97188	24.968	-2.1	37.0	2.8	55.6	338.2	83.2	63.6E	
FEB 18	1 55 6.0	10 40 15.0	5.36083	4.97219	24.603	-2.1	36.8	2.8	356.2	338.2	83.4	61.9E	
FEB 20	1 56 23.6	10 47 48.2	5.38903	4.97251	24.222	-2.1	36.6	2.8	296.8	338.3	83.5	60.2E	
FEB 22	1 57 43.0	10 55 28.7	5.41679	4.97282	23.825	-2.0	36.4	2.8	237.4	338.4	83.7	58.5E	
FEB 24	1 59 4.1	11 3 16.2	5.44407	4.97314	23.413	-2.0	36.2	2.8	178.0	338.5	83.9	56.9E	
FEB 26	2 0 27.0	11 11 10.4	5.47087	4.97346	22.983	-2.0	36.0	2.8	118.5	338.6	84.1	55.2E	
FEB 28	2 1 51.5	11 19 10.8	5.49716	4.97378	22.537	-2.0	35.9	2.8	59.1	338.7	84.3	53.6E	
MAR 1	2 3 17.6	11 27 17.2	5.52293	4.97410	22.074	-2.0	35.7	2.8	359.7	338.7	84.4	52.0E	
MAR 3	2 4 45.2	11 35 29.2	5.54815	4.97443	21.594	-2.0	35.5	2.8	300.2	338.8	84.6	50.3E	
MAR 5	2 6 14.4	11 43 46.2	5.57281	4.97476	21.097	-2.0	35.4	2.8	240.8	338.9	84.8	48.7E	
MAR 7	2 7 45.0	11 52 8.0	5.59688	4.97509	20.585	-2.0	35.2	2.8	181.3	339.0	85.0	47.1E	
MAR 9	2 9 17.0	12 0 34.0	5.62036	4.97542	20.058	-2.0	35.1	2.8	121.9	339.1	85.2	45.5E	
MAR 11	2 10 50.4	12 9 3.9	5.64322	4.97576	19.518	-2.0	34.9	2.8	62.4	339.2	85.4	43.9E	
MAR 13	2 12 25.1	12 17 37.5	5.66545	4.97609	18.967	-2.0	34.8	2.8	3.0	339.3	85.5	42.3E	
MAR 15	2 14 1.0	12 26 14.2	5.68703	4.97643	18.406	-2.0	34.7	2.8	303.5	339.4	85.7	40.8E	
MAR 17	2 15 38.1	12 34 53.7	5.70797	4.97677	17.837	-1.9	34.5	2.8	244.1	339.5	85.9	39.2E	
MAR 19	2 17 16.3	12 43 35.4	5.72824	4.97712	17.260	-1.9	34.4	2.8	184.6	339.7	86.1	37.6E	
MAR 21	2 18 55.7	12 52 19.1	5.74784	4.97746	16.676	-1.9	34.3	2.9	125.2	339.8	86.3	36.1E	
MAR 23	2 20 36.1	13 1 4.5	5.76676	4.97781	16.083	-1.9	34.2	2.9	65.7	339.9	86.4	34.5E	
MAR 25	2 22 17.6	13 9 51.4	5.78499	4.97816	15.481	-1.9	34.1	2.9	6.3	340.0	86.6	33.0E	
MAR 27	2 24 0.0	13 18 39.4	5.80252	4.97851	14.869	-1.9	34.0	2.9	306.8	340.1	86.8	31.4E	
MAR 29	2 25 43.5	13 27 28.2	5.81934	4.97886	14.249	-1.9	33.9	2.9	247.4	340.2	87.0	29.9E	
MAR 31	2 27 27.8	13 36 17.6	5.83544	4.97922	13.619	-1.9	33.8	2.9	187.9	340.4	87.2	28.4E	
APR 2	2 29 13.0	13 45 7.1	5.85080	4.97958	12.980	-1.9	33.7	2.9	128.4	340.5	87.3	26.9E	
APR 4	2 30 59.0	13 53 56.5	5.86542	4.97994	12.332	-1.9	33.6	2.9	69.0	340.6	87.5	25.3E	
APR 6	2 32 45.9	14 2 45.5	5.87929	4.98030	11.677	-1.9	33.5	2.9	9.5	340.8	87.7	23.8E	
APR 8	2 34 33.4	14 11 33.7	5.89240	4.98066	11.016	-1.9	33.5	2.9	310.1	340.9	87.9	22.3E	
APR 10	2 36 21.7	14 20 21.0	5.90474	4.98103	10.351	-1.9	33.4	2.9	250.6	341.0	88.1	20.8E	
APR 12	2 38 10.7	14 29 7.0	5.91631	4.98139	9.683	-1.9	33.3	2.9	191.2	341.2	88.3	19.3E	
APR 14	2 40 0.2	14 37 51.3	5.92711	4.98176	9.014	-1.9	33.3	2.9	131.7	341.3	88.4	17.8E	
APR 16	2 41 50.3	14 46 33.7	5.93714	4.98214	8.343	-1.9	33.2	2.9	72.3	341.4	88.6	16.3E	
APR 18	2 43 41.0	14 55 13.8	5.94639	4.98251	7.671	-1.9	33.2	2.9	13.8	341.6	88.8	14.9E	
APR 20	2 45 32.2	15 3 51.5	5.95486	4.98289	6.997	-1.9	33.1	2.9	313.4	341.7	89.0	13.4E	
APR 22	2 47 23.8	15 12 26.6	5.96255	4.98326	6.320	-1.9	33.1	2.9	254.0	341.9	89.2	11.9E	
APR 24	2 49 15.9	15 20 59.0	5.96946	4.98364	5.639	-1.9	33.0	2.9	194.5	342.0	89.3	10.4E	
APR 26	2 51 8.4	15 29 28.4	5.97558	4.98403	4.956	-1.9	33.0	2.9	135.1	342.2	89.5	9.0E	
APR 28	2 53 1.3	15 37 54.5	5.98091	4.98441	4.269	-1.9	33.0	2.9	75.7	342.3	89.7	7.5E	
APR 30	2 54 54.5	15 46 17.1	5.98544	4.98480	3.579	-1.9	32.9	2.9	16.2	342.5	89.9	6.0E	
MAY 2	2 56 48.0	15 54 36.0	5.98918	4.98518	2.886	-1.9	32.9	2.9	316.8	342.6	90.1	4.6E	
MAY 4	2 58 41.7	16 2 51.0	5.99211	4.98557	2.191	-1.9	32.9	2.9	257.4	342.8	90.2	3.2E	
MAY 6	3 0 35.7	16 11 1.9	5.99424	4.98597	1.495	-1.9	32.9	2.9	198.0	342.9	90.4	1.8E	
MAY 8	3 2 29.9	16 19 8.5	5.99557	4.98636	0.801	-1.9	32.9	3.0	138.6	343.1	90.6	0.9E	
MAY 10	3 4 24.2	16 27 10.6	5.99610	4.98675	0.111	-1.9	32.9	3.0	79.2	343.2	90.8	1.6W	
MAY 12	3 6 18.5	16 35 7.9	5.99583	4.98715	-0.576	-1.9	32.9	3.0	19.7	343.4	91.0	2.9W	
MAY 14	3 8 12.9	16 43 0.2	5.99477	4.98755	-1.259	-1.9	32.9	3.0	320.4	343.6	91.2	4.3W	
MAY 16	3 10 7.4	16 50 47.2	5.99292	4.98795	-1.939	-1.9	32.9	3.0	261.0	343.7	91.3	5.8W	
MAY 18	3 12 1.8	16 58 29.0	5.99029	4.98836	-2.615	-1.9	32.9	3.0	201.6	343.9	91.5	7.2W	
MAY 20	3 13 56.2	17 6 5.5	5.98688	4.98876	-3.290	-1.9	32.9	3.0	142.2	344.1	91.7	8.6W	
MAY 22	3 15 50.5	17 13 36.4	5.98270	4.98917	-3.963	-1.9	33.0	3.0	82.8	344.2	91.9	10.1W	
MAY 24	3 17 44.7	17 21 1.8	5.97773	4.98958	-4.634	-1.9	33.0	3.0	23.4	344.4	92.1	11.5W	
MAY 26	3 19 38.7	17 28 21.3	5.97199	4.98999	-5.303	-1.9	33.0	3.0	324.1	344.6	92.2	13.0W	
MAY 28	3 21 32.5	17 35 34.9	5.96548	4.99041	-5.971	-1.9	33.0	3.0	264.7	344.7	92.4	14.4W	
MAY 30	3 23 26.1	17 42 42.4	5.95820	4.99082	-6.637	-1.9	33.1	3.0	205.3	344.9	92.6	15.9W	
JUN 1	3 25 19.5	17 49 43.7	5.95015	4.99124	-7.300	-1.9	33.1	3.0	146.0	345.1	92.8	17.3W	
JUN 3	3 27 12.5	17 56 38.8	5.94134	4.99166	-7.959	-1.9	33.2	3.0	86.6	345.2	93.0	18.8W	
JUN 5	3 29 5.2	18 3 27.4	5.93177	4.99208	-8.611	-1.9	33.2	3.0	27.3	345.4	93.1	20.2W	
JUN 7	3 30 57.4	18 10 9.5	5.92145	4.99250	-9.256	-1.9	33.3	3.0	328.0	345.6	93.3	21.7W	
JUN 9	3 32 49.2	18 16 44.7	5.91039	4.99293	-9.891	-1.9	33.4	3.0	268.6	345.7	93.5	23.1W	
JUN 11	3 34 40.5	18 23 13.1	5.89860	4.99335	-10.518	-1.9	33.4	3.0	209.3	345.9	93.7	24.6W	
JUN 13	3 36 31.2	18 29 34.5	5.88610	4.99378	-11.138	-1.9	33.5	3.0	150.0	346.1	93.9	26.1W	
JUN 15	3 38 21.4	18 35 48.9	5.87288	4.99421	-11.750	-1.9	33.6	3.0	90.7	346.2	94.0	27.5W	
JUN 17	3 40 11.0	18 41 56.4	5.85896	4.99465	-12.355	-1.9	33.6	3.0	31.4	346.4	94.2	29.0W	
JUN 19	3 41 59.9	18 47 56.8	5.84434	4.99508	-12.954	-1.9	33.7	3.0	332.1	346.6	94.4	30.5W	
JUN 21	3 43 48.2	18											

2000 JUPITER

Geocentric Planetary Ephemeris

2000 JUPITER

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
	(h m s)	(d ' ")												
JUL 1	3 52 37.3	19 21 27.7			5.74245	4.99773	-16.408	-1.9	34.3	3.0	336.5	347.6	95.5	39.3W
JUL 3	3 54 20.4	19 26 37.1			5.72318	4.99817	-16.953	-1.9	34.4	3.0	277.2	347.8	95.7	40.8W
JUL 5	3 56 2.4	19 31 39.0			5.70329	4.99862	-17.485	-1.9	34.6	3.0	218.0	347.9	95.8	42.3W
JUL 7	3 57 43.4	19 36 33.2			5.68279	4.99908	-18.003	-1.9	34.7	3.1	158.7	348.1	96.0	43.8W
JUL 9	3 59 23.1	19 41 19.7			5.66171	4.99953	-18.507	-1.9	34.8	3.1	99.5	348.2	96.2	45.3W
JUL 11	4 1 1.7	19 45 58.7			5.64004	4.99998	-18.999	-2.0	35.0	3.1	40.3	348.4	96.4	46.8W
JUL 13	4 2 39.0	19 50 30.0			5.61782	5.00044	-19.479	-2.0	35.1	3.1	341.1	348.6	96.6	48.4W
JUL 15	4 4 15.1	19 54 53.8			5.59505	5.00090	-19.947	-2.0	35.2	3.1	281.9	348.7	96.7	49.9W
JUL 17	4 5 49.8	19 59 10.0			5.57175	5.00136	-20.403	-2.0	35.4	3.1	222.7	348.9	96.9	51.4W
JUL 19	4 7 23.1	20 3 18.7			5.54792	5.00182	-20.847	-2.0	35.5	3.1	163.5	349.0	97.1	52.9W
JUL 21	4 8 54.9	20 7 19.9			5.52359	5.00229	-21.280	-2.0	35.7	3.1	104.4	349.2	97.3	54.5W
JUL 23	4 10 25.3	20 11 13.5			5.49877	5.00275	-21.701	-2.0	35.9	3.1	45.2	349.3	97.5	56.0W
JUL 25	4 11 54.0	20 14 59.5			5.47347	5.00322	-22.109	-2.0	36.0	3.1	346.0	349.5	97.6	57.6W
JUL 27	4 13 21.2	20 18 38.0			5.44770	5.00369	-22.504	-2.0	36.2	3.1	286.9	349.6	97.8	59.2W
JUL 29	4 14 46.7	20 22 9.1			5.42148	5.00416	-22.883	-2.0	36.4	3.1	227.8	349.8	98.0	60.7W
JUL 31	4 16 10.4	20 25 32.8			5.39484	5.00463	-23.245	-2.0	36.5	3.1	168.6	349.9	98.2	62.3W
AUG 2	4 17 32.3	20 28 48.9			5.36779	5.00511	-23.588	-2.1	36.7	3.1	109.5	350.0	98.4	63.9W
AUG 4	4 18 52.2	20 31 57.5			5.34036	5.00559	-23.911	-2.1	36.9	3.1	50.4	350.2	98.5	65.5W
AUG 6	4 20 10.3	20 34 58.5			5.31256	5.00606	-24.214	-2.1	37.1	3.1	351.3	350.3	98.7	67.1W
AUG 8	4 21 26.3	20 37 52.0			5.28443	5.00654	-24.498	-2.1	37.3	3.1	292.2	350.4	98.9	68.7W
AUG 10	4 22 40.2	20 40 38.3			5.25597	5.00703	-24.763	-2.1	37.5	3.1	233.2	350.5	99.1	70.4W
AUG 12	4 23 52.0	20 43 17.3			5.22723	5.00751	-25.009	-2.1	37.7	3.1	174.1	350.7	99.3	72.0W
AUG 14	4 25 1.7	20 45 49.2			5.19821	5.00800	-25.237	-2.1	37.9	3.1	115.0	350.8	99.4	73.6W
AUG 16	4 26 9.1	20 48 13.9			5.16893	5.00848	-25.447	-2.1	38.1	3.1	56.0	350.9	99.6	75.3W
AUG 18	4 27 14.1	20 50 31.4			5.13943	5.00897	-25.639	-2.1	38.4	3.1	356.9	351.0	99.8	77.0W
AUG 20	4 28 16.8	20 52 41.8			5.10971	5.00946	-25.811	-2.2	38.6	3.1	297.9	351.1	100.0	78.6W
AUG 22	4 29 17.1	20 54 45.1			5.07981	5.00996	-25.963	-2.2	38.8	3.1	238.9	351.2	100.1	80.3W
AUG 24	4 30 14.9	20 56 41.5			5.04974	5.01045	-26.094	-2.2	39.0	3.1	179.9	351.3	100.3	82.0W
AUG 26	4 31 10.1	20 58 31.0			5.01953	5.01095	-26.202	-2.2	39.3	3.1	120.9	351.4	100.5	83.7W
AUG 28	4 32 2.6	21 0 13.7			4.98922	5.01144	-26.284	-2.2	39.5	3.1	61.9	351.5	100.7	85.5W
AUG 30	4 32 52.4	21 1 49.4			4.95882	5.01194	-26.340	-2.2	39.8	3.1	3.0	351.6	100.9	87.2W
SEP 1	4 33 39.4	21 3 18.1			4.92838	5.01244	-26.367	-2.2	40.0	3.1	304.0	351.7	101.0	88.9W
SEP 3	4 34 23.6	21 4 39.9			4.89792	5.01295	-26.367	-2.2	40.3	3.1	245.0	351.7	101.2	90.7W
SEP 5	4 35 4.8	21 5 54.9			4.86747	5.01345	-26.340	-2.3	40.5	3.1	186.1	351.8	101.4	92.5W
SEP 7	4 35 43.2	21 7 3.3			4.83708	5.01396	-26.287	-2.3	40.8	3.1	127.2	351.9	101.6	94.3W
SEP 9	4 36 18.5	21 8 5.0			4.80676	5.01447	-26.207	-2.3	41.0	3.1	68.3	351.9	101.8	96.1W
SEP 11	4 36 50.8	21 9 0.2			4.77654	5.01498	-26.101	-2.3	41.3	3.1	9.4	352.0	101.9	97.9W
SEP 13	4 37 19.9	21 9 48.9			4.74647	5.01549	-25.968	-2.3	41.5	3.1	310.5	352.0	102.1	99.7W
SEP 15	4 37 45.9	21 10 31.0			4.71656	5.01600	-25.809	-2.3	41.8	3.1	251.6	352.1	102.3	101.6W
SEP 17	4 38 8.7	21 11 6.5			4.68685	5.01652	-25.624	-2.3	42.1	3.1	192.7	352.1	102.5	103.4W
SEP 19	4 38 28.3	21 11 35.6			4.65738	5.01703	-25.410	-2.4	42.3	3.1	133.9	352.2	102.7	105.3W
SEP 21	4 38 44.6	21 11 58.3			4.62816	5.01755	-25.166	-2.4	42.6	3.1	75.0	352.2	102.8	107.2W
SEP 23	4 38 57.6	21 12 14.7			4.59925	5.01807	-24.892	-2.4	42.9	3.1	16.2	352.2	103.0	109.1W
SEP 25	4 39 7.2	21 12 24.6			4.57067	5.01859	-24.584	-2.4	43.1	3.1	317.4	352.2	103.2	111.0W
SEP 27	4 39 13.3	21 12 28.0			4.54247	5.01911	-24.241	-2.4	43.4	3.1	258.6	352.2	103.4	113.0W
SEP 29	4 39 16.0	21 12 24.9			4.51468	5.01964	-23.864	-2.4	43.7	3.1	199.8	352.2	103.5	114.9W
OCT 1	4 39 15.3	21 12 15.3			4.48735	5.02016	-23.454	-2.4	43.9	3.1	141.0	352.2	103.7	116.9W
OCT 3	4 39 11.2	21 11 59.3			4.46051	5.02069	-23.010	-2.4	44.2	3.2	82.2	352.2	103.9	118.9W
OCT 5	4 39 3.6	21 11 37.0			4.43420	5.02122	-22.533	-2.5	44.5	3.2	23.4	352.2	104.1	120.9W
OCT 7	4 38 52.6	21 11 8.4			4.40846	5.02175	-22.026	-2.5	44.7	3.2	324.7	352.2	104.3	122.9W
OCT 9	4 38 38.2	21 10 33.6			4.38333	5.02229	-21.487	-2.5	45.0	3.2	265.9	352.2	104.4	124.9W
OCT 11	4 38 20.4	21 9 52.5			4.35884	5.02282	-20.918	-2.5	45.2	3.2	207.2	352.1	104.6	127.0W
OCT 13	4 37 59.2	21 9 5.1			4.33502	5.02336	-20.318	-2.5	45.5	3.2	148.5	352.1	104.8	129.0W
OCT 15	4 37 34.7	21 8 11.5			4.31191	5.02389	-19.689	-2.5	45.7	3.2	89.8	352.1	105.0	131.1W
OCT 17	4 37 7.0	21 7 11.8			4.28954	5.02443	-19.030	-2.5	46.0	3.2	31.1	352.0	105.2	133.2W
OCT 19	4 36 36.0	21 6 5.9			4.26795	5.02497	-18.339	-2.6	46.2	3.2	332.4	352.0	105.3	135.3W
OCT 21	4 36 1.8	21 4 54.0			4.24719	5.02552	-17.615	-2.6	46.4	3.2	273.7	351.9	105.5	137.4W
OCT 23	4 35 24.5	21 3 36.0			4.22727	5.02606	-16.858	-2.6	46.6	3.2	215.0	351.8	105.7	139.6W
OCT 25	4 34 44.2	21 2 11.9			4.20825	5.02661	-16.069	-2.6	46.8	3.2	156.3	351.8	105.9	141.7W
OCT 27	4 34 1.0	21 0 41.8			4.19016	5.02715	-15.248	-2.6	47.0	3.2	97.6	351.7	106.0	143.9W
OCT 29	4 33 14.9	20 59 5.8			4.17303	5.02770	-14.397	-2.6	47.2	3.2	39.0	351.6	106.2	146.0W
OCT 31	4 32 26.1	20 57 24.2			4.15691	5.02825	-13.518	-2.6	47.4	3.2	340.3	351.5	106.4	148.2W
NOV 2	4 31 34.8	20 55 37.2			4.14181	5.02880	-12.614	-2.6	47.6	3.2	281.7	351.5	106.6	150.4W
NOV 4	4 30 41.1	20 53 44.9			4.12777	5.02936	-11.687	-2.6	47.8	3.2	223.0	351.4	106.8	152.7W
NOV 6	4 29 45.1	20 51 47.6			4.11482	5.02991	-10.738	-2.6	47.9	3.2	164.4	351.3	106.9	154.9W
NOV 8	4 28 47.0	20 49 45.3			4.10297	5.03047	-9.769	-2.7	48.0	3.2	105.8	351.2	107.1	157.1W
NOV 10	4 27 46.9	20 47 38.4			4.09225	5.03102	-8.781	-2.7	48.2	3.2	47.1	351.1	107.3	159.4W
NOV 12	4 26 45.1	20 45 27.2			4.08269	5.03158	-7.777	-2.7	48.3	3.2	348.5	351.0	107.5	161.6W
NOV 14	4 25 41.7	20 43 11.9			4.07429	5.03214	-6.757	-2.7	48.4	3.2	289.8	350.9	107.6	163.9W
NOV 16	4 24 37.0	20 40 53.0			4.06708	5.03271	-5.721	-2.7	48.5	3.2	231.2	350.7	107.8	166.1W
NOV 18	4 23 30.9	20 38 30.7			4.06108	5.03327	-4.670	-2.7	48.5	3.2	172.6	350.6	108.0	168.4W
NOV 20	4 22 23.8	20 36 5.3			4.05629	5.03383	-3.604	-2.7	48.6	3.2	113.9	350.5	108.2	170.7W
NOV 22	4 21 15.9	20 33 37.2			4.05275	5.03440	-2.526	-2.7	48.6	3.2	55.3	350.4	108.4	172.9W
NOV 24	4 20 7.4	20 31 6.7			4.05046	5.03497	-1.439	-2.7	48.7	3.1	356.6	350.3	108.5	175.2W
NOV 26	4 18 58.4	20 28 34.6			4.04943	5.03554	-0.345	-2.7	48.7	3.1	298.0	350.2	108.7	177.4W
NOV 28	4 17 49.4	20 26 1.2			4.04966	5.03611	0.751	-2.7	48.7	3.1	239.3	350.1	108.9	179.1W
NOV 30	4 16 40.3	20 23 27.2			4.05116	5.03668	1.847	-2.7	48.7	3.1	180.7	349.9	109.1	177.6E
DEC 2	4 15 31.6	20 20 53.2			4.05392	5.03726	2.941	-2.7	48.6	3.1	122.0	349.8	109.2	175.4E
DEC 4	4 14 23.3	20 18 19.6			4.05795	5.03783	4.028	-2.7	48.6	3.1	63.3	349.7	109.4	173.1E
DEC 6	4 13 15.7	20 15 46.9			4.06322	5.03841	5.108	-2.7	48.5	3.1	4.6	349.6	109.6	170.9E
DEC 8	4 12													

2001 JUPITER

Geocentric Planetary Ephemeris

2001 JUPITER

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")													
JAN 1	4 1 6.2	19 48 23.1	4.23883	5.04604	17.739	-2.6	46.5	3.0	320.6	348.4	111.9	141.6E		
JAN 3	4 0 27.2	19 47 1.1	4.25979	5.04663	18.540	-2.6	46.3	3.0	261.7	348.3	112.1	139.4E		
JAN 5	3 59 51.1	19 45 47.5	4.28165	5.04723	19.309	-2.5	46.0	3.0	202.8	348.3	112.2	137.2E		
JAN 7	3 59 18.2	19 44 42.8	4.30438	5.04783	20.046	-2.5	45.8	3.0	143.9	348.2	112.4	135.0E		
JAN 9	3 58 48.6	19 43 47.3	4.32795	5.04843	20.751	-2.5	45.6	3.0	85.0	348.2	112.6	132.9E		
JAN 11	3 58 22.1	19 43 1.2	4.35231	5.04903	21.426	-2.5	45.3	3.0	26.0	348.1	112.8	130.7E		
JAN 13	3 57 58.9	19 42 24.5	4.37743	5.04963	22.070	-2.5	45.0	3.0	327.1	348.1	112.9	128.6E		
JAN 15	3 57 39.1	19 41 57.4	4.40328	5.05024	22.685	-2.5	44.8	3.0	268.1	348.1	113.1	126.5E		
JAN 17	3 57 22.5	19 41 39.9	4.42982	5.05084	23.268	-2.5	44.5	3.0	209.1	348.0	113.3	124.4E		
JAN 19	3 57 9.4	19 41 32.3	4.45702	5.05145	23.818	-2.4	44.2	2.9	150.1	348.0	113.5	122.3E		
JAN 21	3 56 59.8	19 41 34.7	4.48483	5.05206	24.334	-2.4	44.0	2.9	91.0	348.0	113.7	120.2E		
JAN 23	3 56 53.6	19 41 47.3	4.51322	5.05267	24.815	-2.4	43.7	2.9	32.0	348.0	113.8	118.2E		
JAN 25	3 56 50.8	19 42 9.9	4.54215	5.05328	25.261	-2.4	43.4	2.9	332.9	348.0	114.0	116.1E		
JAN 27	3 56 51.4	19 42 42.6	4.57156	5.05389	25.670	-2.4	43.1	2.9	273.8	348.0	114.2	114.1E		
JAN 29	3 56 55.5	19 43 25.3	4.60143	5.05450	26.044	-2.4	42.8	2.9	214.8	348.0	114.4	112.1E		
JAN 31	3 57 3.1	19 44 17.8	4.63171	5.05512	26.382	-2.3	42.6	2.9	155.6	348.0	114.5	110.1E		
FEB 2	3 57 14.0	19 45 20.0	4.66237	5.05573	26.685	-2.3	42.3	2.9	96.5	348.0	114.7	108.1E		
FEB 4	3 57 28.3	19 46 31.9	4.69335	5.05635	26.954	-2.3	42.0	2.9	37.4	348.1	114.9	106.1E		
FEB 6	3 57 45.9	19 47 53.3	4.72462	5.05697	27.190	-2.3	41.7	2.9	338.2	348.1	115.1	104.2E		
FEB 8	3 58 6.9	19 49 24.0	4.75615	5.05759	27.397	-2.3	41.5	2.9	279.0	348.1	115.2	102.2E		
FEB 10	3 58 31.0	19 51 3.5	4.78790	5.05821	27.575	-2.3	41.2	2.9	219.9	348.2	115.4	100.3E		
FEB 12	3 58 58.3	19 52 51.6	4.81984	5.05883	27.725	-2.3	40.9	2.8	160.7	348.2	115.6	98.4E		
FEB 14	3 59 28.8	19 54 48.1	4.85194	5.05946	27.846	-2.2	40.6	2.8	101.4	348.3	115.8	96.5E		
FEB 16	4 0 2.4	19 56 52.8	4.88416	5.06008	27.937	-2.2	40.4	2.8	42.2	348.3	115.9	94.6E		
FEB 18	4 0 39.1	19 59 5.6	4.91647	5.06071	27.998	-2.2	40.1	2.8	343.0	348.4	116.1	92.7E		
FEB 20	4 1 18.8	20 1 26.1	4.94883	5.06133	28.029	-2.2	39.8	2.8	283.7	348.4	116.3	90.9E		
FEB 22	4 2 1.5	20 3 54.1	4.98121	5.06196	28.030	-2.2	39.6	2.8	224.5	348.5	116.5	89.0E		
FEB 24	4 2 47.1	20 6 29.2	5.01357	5.06259	28.001	-2.2	39.3	2.8	165.2	348.6	116.6	87.2E		
FEB 26	4 3 35.5	20 9 11.0	5.04589	5.06322	27.942	-2.2	39.1	2.8	105.9	348.7	116.8	85.4E		
FEB 28	4 4 26.8	20 11 59.2	5.07811	5.06385	27.855	-2.1	38.8	2.8	46.6	348.7	117.0	83.6E		
MAR 2	4 5 20.8	20 14 53.6	5.11023	5.06449	27.741	-2.1	38.6	2.8	347.3	348.8	117.2	81.8E		
MAR 4	4 6 17.6	20 17 53.8	5.14219	5.06512	27.601	-2.1	38.3	2.8	288.0	348.9	117.3	80.0E		
MAR 6	4 7 16.9	20 20 59.4	5.17398	5.06575	27.437	-2.1	38.1	2.8	228.7	349.0	117.5	78.2E		
MAR 8	4 8 18.7	20 24 10.1	5.20557	5.06639	27.251	-2.1	37.9	2.8	169.3	349.1	117.7	76.5E		
MAR 10	4 9 23.0	20 27 25.3	5.23693	5.06703	27.045	-2.1	37.6	2.8	110.0	349.2	117.9	74.7E		
MAR 12	4 10 29.8	20 30 44.8	5.26804	5.06767	26.819	-2.1	37.4	2.8	50.6	349.3	118.0	73.0E		
MAR 14	4 11 38.8	20 34 8.1	5.29888	5.06831	26.573	-2.1	37.2	2.7	351.3	349.4	118.2	71.3E		
MAR 16	4 12 50.2	20 37 35.1	5.32942	5.06895	26.306	-2.0	37.0	2.7	291.9	349.6	118.4	69.6E		
MAR 18	4 14 3.9	20 41 5.5	5.35964	5.06959	26.017	-2.0	36.8	2.7	232.5	349.7	118.6	67.9E		
MAR 20	4 15 19.7	20 44 38.9	5.38952	5.07023	25.707	-2.0	36.6	2.7	173.2	349.8	118.7	66.2E		
MAR 22	4 16 37.7	20 48 14.9	5.41902	5.07088	25.376	-2.0	36.4	2.7	113.8	349.9	118.9	64.5E		
MAR 24	4 17 57.8	20 51 53.2	5.44813	5.07152	25.024	-2.0	36.2	2.7	54.4	350.1	119.1	62.9E		
MAR 26	4 19 19.9	20 55 33.5	5.47683	5.07217	24.651	-2.0	36.0	2.7	355.0	350.2	119.3	61.2E		
MAR 28	4 20 43.9	20 59 15.4	5.50508	5.07282	24.260	-2.0	35.8	2.7	295.6	350.4	119.4	59.6E		
MAR 30	4 22 9.8	21 2 58.5	5.53286	5.07347	23.850	-2.0	35.6	2.7	236.2	350.5	119.6	57.9E		
APR 1	4 23 37.6	21 6 42.7	5.56017	5.07412	23.423	-2.0	35.5	2.7	176.8	350.6	119.8	56.3E		
APR 3	4 25 7.2	21 10 27.6	5.58697	5.07477	22.982	-1.9	35.3	2.7	117.3	350.8	120.0	54.7E		
APR 5	4 26 38.4	21 14 12.8	5.61326	5.07542	22.527	-1.9	35.1	2.7	57.9	351.0	120.1	53.1E		
APR 7	4 28 11.3	21 17 57.9	5.63901	5.07607	22.062	-1.9	35.0	2.7	358.5	351.1	120.3	51.5E		
APR 9	4 29 45.8	21 21 42.5	5.66422	5.07673	21.584	-1.9	34.8	2.7	299.1	351.3	120.5	49.9E		
APR 11	4 31 21.8	21 25 26.5	5.68887	5.07738	21.095	-1.9	34.7	2.7	239.6	351.4	120.7	48.3E		
APR 13	4 32 59.3	21 29 9.7	5.71295	5.07804	20.593	-1.9	34.5	2.7	180.2	351.6	120.8	46.7E		
APR 15	4 34 38.3	21 32 51.8	5.73644	5.07869	20.078	-1.9	34.4	2.7	120.8	351.8	121.0	45.1E		
APR 17	4 36 18.6	21 36 32.5	5.75933	5.07935	19.549	-1.9	34.2	2.7	61.3	351.9	121.2	43.6E		
APR 19	4 38 0.3	21 40 11.6	5.78160	5.08001	19.007	-1.9	34.1	2.6	1.9	352.1	121.4	42.0E		
APR 21	4 39 43.3	21 43 48.8	5.80324	5.08067	18.452	-1.9	34.0	2.6	302.5	352.3	121.5	40.5E		
APR 23	4 41 27.6	21 47 23.8	5.82422	5.08133	17.885	-1.9	33.8	2.6	243.0	352.5	121.7	38.9E		
APR 25	4 43 13.0	21 50 56.3	5.84455	5.08200	17.306	-1.9	33.7	2.6	183.6	352.7	121.9	37.4E		
APR 27	4 44 59.7	21 54 26.3	5.86420	5.08266	16.716	-1.8	33.6	2.6	124.1	352.8	122.1	35.8E		
APR 29	4 46 47.4	21 57 53.4	5.88317	5.08332	16.117	-1.8	33.5	2.6	64.7	353.0	122.2	34.3E		
MAY 1	4 48 36.1	22 1 17.5	5.90143	5.08399	15.511	-1.8	33.4	2.6	5.2	353.2	122.4	32.8E		
MAY 3	4 50 25.8	22 4 38.2	5.91900	5.08465	14.899	-1.8	33.3	2.6	305.8	353.4	122.6	31.3E		
MAY 5	4 52 16.4	22 7 55.3	5.93585	5.08532	14.283	-1.8	33.2	2.6	246.3	353.6	122.8	29.8E		
MAY 7	4 54 7.9	22 11 8.5	5.95200	5.08599	13.662	-1.8	33.1	2.6	186.9	353.8	122.9	28.3E		
MAY 9	4 56 0.2	22 14 17.9	5.96742	5.08666	13.035	-1.8	33.0	2.6	127.5	354.0	123.1	26.8E		
MAY 11	4 57 53.4	22 17 23.1	5.98211	5.08733	12.402	-1.8	33.0	2.6	68.0	354.2	123.3	25.3E		
MAY 13	4 59 47.3	22 20 24.3	5.99607	5.08800	11.762	-1.8	32.9	2.6	8.6	354.4	123.4	23.8E		
MAY 15	5 1 41.9	22 23 21.0	6.00928	5.08867	11.116	-1.8	32.8	2.6	309.1	354.6	123.6	22.3E		
MAY 17	5 3 37.2	22 26 13.3	6.02174	5.08935	10.462	-1.8	32.7	2.6	249.7	354.8	123.8	20.8E		
MAY 19	5 5 33.1	22 29 0.8	6.03345	5.09002	9.801	-1.8	32.7	2.6	190.3	355.0	124.0	19.4E		
MAY 21	5 7 29.6	22 31 43.4	6.04439	5.09069	9.134	-1.8	32.6	2.5	130.8	355.2	124.1	17.9E		
MAY 23	5 9 26.7	22 34 21.1	6.05455	5.09137	8.461	-1.8	32.6	2.5	71.4	355.4	124.3	16.4E		
MAY 25	5 11 24.3	22 36 53.7	6.06393	5.09205	7.783	-1.8	32.5	2.5	12.0	355.6	124.5	14.9E		
MAY 27	5 13 22.3	22 39 21.3	6.07253	5.09272	7.102	-1.8	32.5	2.5	312.5	355.8	124.7	13.5E		
MAY 29	5 15 20.7	22 41 43.5	6.08034	5.09340	6.420	-1.8	32.4	2.5	253.1	356.0	124.8	12.0E		
MAY 31	5 17 19.5	22 44 0.3	6.08737	5.09408	5.738	-1.8	32.4	2.5	193.7	356.3	125.0	10.6E		
JUN 2	5 19 18.5	22 46 11.5	6.09360	5.09476	5.057	-1.8	32.4	2.5	134.3	356.5	125.2	9.1E		
JUN 4	5 21 17.8	22 48 17.0	6.09905	5.09544	4.376	-1.8	32.3	2.5	74.9	356.7	125.4	7.6E		
JUN 6	5 23 17.4	22 50 16.9	6.10371	5.09613	3.694	-1.8	32.3	2.5	15.5	356.9	125.5	6.2E		
JUN 8	5 25 17.1	22 52 11.1	6.10758	5.09681	3.011	-1.8	32.3	2.5	316.0	357.1	125.7	4.7E		
JUN 10	5 27 17.0	22 53 59.6	6.11067	5.09749	2.327	-1.8	32.3	2.5	256.6	357.3	125.9	3.3E		
JUN 12	5 29 17.0	22 55 42.3	6.11296	5.09818	1.641	-1.8	32.3	2.5	197.2	357.5	126.0	1.9E		
JUN 14	5 31 17.1	22 57 19.2	6.11446	5.09886	0.952	-1.8	32.2	2.5	137.8	357.7	126.2	0.5E		
JUN 16	5 33 17.2	22 58 50.2	6.11516	5.09955	0.262	-1.8	32.2	2.5	78.4	358.0	126.4	1.1W		
JUN 18	5 35 17.3	23 0 15.2	6.11507	5.10024	-0.430	-1.8	32.2							

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
(h m s)	(d ' ")													
JUL 2	5 49 14.1	23	7 25.2	6.09210	5.10507	-5.224	-1.8	32.4	2.4	323.5	359.7	127.8	12.7W	
JUL 4	5 51 12.5	23	8 3.0	6.08568	5.10576	-5.892	-1.8	32.4	2.4	264.1	359.9	127.9	14.1W	
JUL 6	5 53 10.5	23	8 35.2	6.07849	5.10646	-6.556	-1.8	32.4	2.4	204.8	0.1	128.1	15.6W	
JUL 8	5 55 8.1	23	9 1.6	6.07053	5.10715	-7.218	-1.8	32.5	2.4	145.4	0.3	128.3	17.0W	
JUL 10	5 57 5.2	23	9 22.5	6.06182	5.10785	-7.877	-1.8	32.5	2.3	86.1	0.5	128.5	18.5W	
JUL 12	5 59 1.8	23	9 37.8	6.05234	5.10855	-8.533	-1.8	32.6	2.3	26.8	0.7	128.6	19.9W	
JUL 14	6 0 57.8	23	9 47.6	6.04211	5.10924	-9.186	-1.8	32.6	2.3	327.4	0.9	128.8	21.4W	
JUL 16	6 2 53.2	23	9 51.9	6.03112	5.10994	-9.836	-1.8	32.7	2.3	268.1	1.2	129.0	22.9W	
JUL 18	6 4 48.0	23	9 50.9	6.01939	5.11064	-10.482	-1.8	32.8	2.3	208.8	1.4	129.2	24.3W	
JUL 20	6 6 42.1	23	9 44.7	6.00691	5.11134	-11.124	-1.8	32.8	2.3	149.5	1.6	129.3	25.8W	
JUL 22	6 8 35.4	23	9 33.6	5.99369	5.11204	-11.758	-1.8	32.9	2.3	90.2	1.8	129.5	27.3W	
JUL 24	6 10 27.9	23	9 17.5	5.97975	5.11274	-12.384	-1.8	33.0	2.3	30.9	2.0	129.7	28.8W	
JUL 26	6 12 19.5	23	8 56.4	5.96509	5.11344	-13.000	-1.8	33.0	2.3	331.7	2.2	129.8	30.3W	
JUL 28	6 14 10.3	23	8 30.5	5.94972	5.11415	-13.605	-1.8	33.1	2.3	272.4	2.4	130.0	31.7W	
JUL 30	6 16 0.1	23	7 60.0	5.93366	5.11485	-14.201	-1.8	33.2	2.3	213.1	2.6	130.2	33.2W	
AUG 1	6 17 48.9	23	7 25.1	5.91692	5.11555	-14.788	-1.8	33.3	2.2	153.8	2.8	130.4	34.7W	
AUG 3	6 19 36.7	23	6 45.9	5.89951	5.11626	-15.366	-1.8	33.4	2.2	94.6	2.9	130.5	36.2W	
AUG 5	6 21 23.4	23	6 2.7	5.88143	5.11696	-15.936	-1.8	33.5	2.2	35.3	3.1	130.7	37.7W	
AUG 7	6 23 8.9	23	5 15.6	5.86270	5.11767	-16.499	-1.8	33.6	2.2	336.1	3.3	130.9	39.2W	
AUG 9	6 24 53.3	23	4 24.7	5.84332	5.11838	-17.053	-1.8	33.7	2.2	276.9	3.5	131.0	40.8W	
AUG 11	6 26 36.5	23	3 30.1	5.82331	5.11908	-17.599	-1.8	33.9	2.2	217.7	3.7	131.2	42.3W	
AUG 13	6 28 18.4	23	2 32.1	5.80267	5.11979	-18.136	-1.8	34.0	2.2	158.4	3.9	131.4	43.8W	
AUG 15	6 29 59.1	23	1 30.9	5.78141	5.12050	-18.664	-1.9	34.1	2.2	99.2	4.1	131.6	45.3W	
AUG 17	6 31 38.3	23	0 26.8	5.75956	5.12121	-19.181	-1.9	34.2	2.2	40.0	4.2	131.7	46.9W	
AUG 19	6 33 16.1	22	59 19.9	5.73711	5.12192	-19.685	-1.9	34.4	2.2	340.8	4.4	131.9	48.4W	
AUG 21	6 34 52.4	22	58 10.5	5.71409	5.12263	-20.174	-1.9	34.5	2.1	281.7	4.6	132.1	50.0W	
AUG 23	6 36 27.1	22	56 58.7	5.69051	5.12334	-20.647	-1.9	34.6	2.1	222.5	4.7	132.2	51.6W	
AUG 25	6 38 0.2	22	55 44.7	5.66640	5.12405	-21.103	-1.9	34.8	2.1	163.3	4.9	132.4	53.1W	
AUG 27	6 39 31.7	22	54 28.7	5.64176	5.12476	-21.544	-1.9	34.9	2.1	104.2	5.1	132.6	54.7W	
AUG 29	6 41 1.4	22	53 11.2	5.61663	5.12548	-21.970	-1.9	35.1	2.1	45.0	5.2	132.8	56.3W	
AUG 31	6 42 29.4	22	51 52.4	5.59102	5.12619	-22.380	-1.9	35.3	2.1	345.9	5.4	132.9	57.9W	
SEP 2	6 43 55.5	22	50 32.4	5.56494	5.12690	-22.776	-1.9	35.4	2.1	286.8	5.5	133.1	59.5W	
SEP 4	6 45 19.8	22	49 11.6	5.53841	5.12762	-23.157	-1.9	35.6	2.1	227.6	5.7	133.3	61.1W	
SEP 6	6 46 42.1	22	47 50.1	5.51145	5.12833	-23.523	-1.9	35.8	2.1	168.5	5.8	133.4	62.7W	
SEP 8	6 48 2.5	22	46 28.2	5.48407	5.12905	-23.874	-2.0	35.9	2.1	109.4	6.0	133.6	64.4W	
SEP 10	6 49 20.8	22	45 6.1	5.45630	5.12976	-24.209	-2.0	36.1	2.1	50.3	6.1	133.8	66.0W	
SEP 12	6 50 37.1	22	43 44.2	5.42815	5.13048	-24.527	-2.0	36.3	2.0	351.3	6.2	134.0	67.6W	
SEP 14	6 51 51.1	22	42 22.9	5.39964	5.13120	-24.827	-2.0	36.5	2.0	292.2	6.4	134.1	69.3W	
SEP 16	6 53 3.0	22	41 2.3	5.37080	5.13191	-25.106	-2.0	36.7	2.0	233.1	6.5	134.3	71.0W	
SEP 18	6 54 12.4	22	39 42.7	5.34166	5.13263	-25.362	-2.0	36.9	2.0	174.1	6.6	134.5	72.7W	
SEP 20	6 55 19.6	22	38 24.3	5.31222	5.13335	-25.593	-2.0	37.1	2.0	115.0	6.7	134.6	74.4W	
SEP 22	6 56 24.2	22	37 7.4	5.28254	5.13407	-25.801	-2.0	37.3	2.0	56.0	6.8	134.8	76.1W	
SEP 24	6 57 26.4	22	35 52.3	5.25263	5.13479	-25.984	-2.0	37.5	2.0	357.0	7.0	135.0	77.8W	
SEP 26	6 58 26.1	22	34 39.4	5.22252	5.13551	-26.144	-2.1	37.7	2.0	298.0	7.1	135.2	79.5W	
SEP 28	6 59 23.1	22	33 28.9	5.19224	5.13623	-26.282	-2.1	38.0	2.0	239.0	7.2	135.3	81.2W	
SEP 30	7 0 17.5	22	32 21.1	5.16181	5.13695	-26.396	-2.1	38.2	2.0	180.0	7.2	135.5	83.0W	
OCT 2	7 1 9.2	22	31 16.2	5.13127	5.13767	-26.487	-2.1	38.4	2.0	121.0	7.3	135.7	84.8W	
OCT 4	7 1 58.1	22	30 14.4	5.10063	5.13840	-26.554	-2.1	38.7	2.0	62.1	7.4	135.8	86.5W	
OCT 6	7 2 44.2	22	29 16.0	5.06993	5.13912	-26.597	-2.1	38.9	1.9	3.1	7.5	136.0	88.3W	
OCT 8	7 3 27.4	22	28 21.3	5.03920	5.13984	-26.616	-2.1	39.1	1.9	304.2	7.6	136.2	90.1W	
OCT 10	7 4 7.7	22	27 30.4	5.00846	5.14057	-26.609	-2.1	39.4	1.9	245.2	7.6	136.3	92.0W	
OCT 12	7 4 44.9	22	26 43.9	4.97774	5.14129	-26.574	-2.2	39.6	1.9	186.3	7.7	136.5	93.8W	
OCT 14	7 5 19.1	22	26 1.7	4.94708	5.14201	-26.509	-2.2	39.9	1.9	127.4	7.8	136.7	95.6W	
OCT 16	7 5 50.1	22	25 24.1	4.91651	5.14274	-26.412	-2.2	40.1	1.9	68.5	7.8	136.9	97.5W	
OCT 18	7 6 18.0	22	24 51.2	4.88607	5.14346	-26.283	-2.2	40.3	1.9	9.6	7.9	137.0	99.4W	
OCT 20	7 6 42.6	22	24 23.2	4.85580	5.14419	-26.120	-2.2	40.6	1.9	310.8	7.9	137.2	101.3W	
OCT 22	7 7 4.0	22	24 0.4	4.82574	5.14492	-25.925	-2.2	40.9	1.9	251.9	7.9	137.4	103.2W	
OCT 24	7 7 22.1	22	23 42.9	4.79592	5.14564	-25.698	-2.2	41.1	1.9	193.1	8.0	137.5	105.1W	
OCT 26	7 7 36.8	22	23 31.0	4.76638	5.14637	-25.441	-2.2	41.4	1.9	134.2	8.0	137.7	107.0W	
OCT 28	7 7 48.2	22	23 24.6	4.73716	5.14710	-25.152	-2.3	41.6	1.9	75.4	8.0	137.9	109.0W	
OCT 30	7 7 56.2	22	23 23.8	4.70829	5.14782	-24.833	-2.3	41.9	1.9	16.6	8.0	138.0	111.0W	
NOV 1	7 8 0.9	22	23 28.7	4.67980	5.14855	-24.482	-2.3	42.1	1.9	317.8	8.0	138.2	112.9W	
NOV 3	7 8 2.1	22	23 39.2	4.65174	5.14928	-24.101	-2.3	42.4	1.9	259.0	8.0	138.4	114.9W	
NOV 5	7 7 59.9	22	23 55.6	4.62414	5.15001	-23.688	-2.3	42.6	1.9	200.2	8.0	138.6	117.0W	
NOV 7	7 7 54.2	22	24 17.8	4.59703	5.15074	-23.242	-2.3	42.9	1.9	141.4	8.0	138.7	119.0W	
NOV 9	7 7 45.1	22	24 45.8	4.57046	5.15147	-22.762	-2.3	43.1	1.9	82.7	8.0	138.9	121.0W	
NOV 11	7 7 32.5	22	25 19.6	4.54446	5.15220	-22.246	-2.4	43.4	1.9	23.9	8.0	139.1	123.1W	
NOV 13	7 7 16.5	22	25 59.0	4.51907	5.15293	-21.694	-2.4	43.6	1.9	325.2	8.0	139.2	125.2W	
NOV 15	7 6 57.0	22	26 43.9	4.49435	5.15366	-21.105	-2.4	43.9	1.9	266.5	7.9	139.4	127.2W	
NOV 17	7 6 34.2	22	27 34.1	4.47033	5.15439	-20.480	-2.4	44.1	1.9	207.8	7.9	139.6	129.4W	
NOV 19	7 6 8.0	22	28 29.8	4.44705	5.15512	-19.821	-2.4	44.3	1.9	149.0	7.9	139.7	131.5W	
NOV 21	7 5 38.5	22	29 30.6	4.42455	5.15585	-19.128	-2.4	44.6	1.9	90.3	7.8	139.9	133.6W	
NOV 23	7 5 5.8	22	30 36.3	4.40287	5.15658	-18.405	-2.4	44.8	1.9	31.7	7.7	140.1	135.8W	
NOV 25	7 4 29.9	22	31 46.7	4.38204	5.15732	-17.651	-2.4	45.0	1.9	333.0	7.7	140.2	137.9W	
NOV 27	7 3 51.0	22	33 1.4	4.36210	5.15805	-16.868	-2.5	45.2	1.9	274.3	7.6	140.4	140.1W	
NOV 29	7 3 9.1	22	34 20.2	4.34308	5.15878	-16.057	-2.5	45.4	1.9	215.6	7.5	140.6	142.3W	
DEC 1	7 2 24.3	22	35 42.8	4.32502	5.15951	-15.219	-2.5	45.6	1.9	157.0	7.5	140.7	144.5W	
DEC 3	7 1 36.7	22	37 8.8	4.30793	5.16025	-14.354	-2.5	45.8	1.9	98.3	7.4	140.9	146.7W	
DEC 5	7 0 46.4	22	38 38.1	4.29186	5.16098	-13.463	-2.5	45.9	1.9	39.7	7.3	141.1	148.9W	
DEC 7	6 59 53.6	22	40 10.3	4.27684	5.16171	-12.544	-2.5	46.1	1.9	341.0	7.2	141.3	151.1W	
DEC 9	6 58 58.4	22	41 45.0	4.26289	5.16245	-11.599	-2.5	46.2	1.9	282.4	7.1	141.4	153.4W	
DEC 11	6 58 0.8	22	43 21.6	4.25005	5.16318	-10.627	-2.5	46.4	1.9	223.7	7.0	141.6	155.6W	
DEC 13	6 57 1.1	22	44 59.8	4.23835	5.16392	-9.631	-2.5	46.5	1.9	165.1	6.9	141.8	157.9W	
DEC 15	6 55 59.5	22	46 39.3	4.22781	5.16465	-8.614	-2.5</							

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")													
JAN 2	6 45 49.2	23	1 33.7	4.18808	5.17127	1.072	-2.6	47.1	1.9	298.7	5.7	143.4	179.1E	
JAN 4	6 44 38.9	23	3 6.8	4.18995	5.17201	2.170	-2.6	47.1	1.9	240.0	5.6	143.6	176.8E	
JAN 6	6 43 29.0	23	4 37.5	4.19308	5.17275	3.267	-2.6	47.0	1.9	181.3	5.5	143.8	174.5E	
JAN 8	6 42 19.5	23	6 5.6	4.19749	5.17348	4.362	-2.6	47.0	1.9	122.6	5.4	143.9	172.2E	
JAN 10	6 41 10.7	23	7 30.9	4.20316	5.17422	5.452	-2.6	46.9	1.9	63.9	5.2	144.1	169.9E	
JAN 12	6 40 2.8	23	8 53.4	4.21008	5.17496	6.534	-2.5	46.8	1.9	5.2	5.1	144.3	167.6E	
JAN 14	6 38 56.1	23	10 13.1	4.21824	5.17570	7.604	-2.5	46.7	1.9	306.5	5.0	144.5	165.3E	
JAN 16	6 37 50.8	23	11 29.7	4.22764	5.17643	8.659	-2.5	46.6	1.9	247.8	4.9	144.6	163.0E	
JAN 18	6 36 46.9	23	12 43.1	4.23824	5.17717	9.697	-2.5	46.5	1.9	189.1	4.8	144.8	160.7E	
JAN 20	6 35 44.9	23	13 53.3	4.25003	5.17791	10.715	-2.5	46.4	1.9	130.3	4.7	145.0	158.5E	
JAN 22	6 34 44.7	23	15 0.2	4.26298	5.17865	11.712	-2.5	46.2	1.9	71.6	4.6	145.1	156.2E	
JAN 24	6 33 46.6	23	16 3.7	4.27707	5.17938	12.685	-2.5	46.1	1.9	12.8	4.5	145.3	153.9E	
JAN 26	6 32 50.8	23	17 4.0	4.29227	5.18012	13.634	-2.5	45.9	1.9	314.0	4.4	145.5	151.7E	
JAN 28	6 31 57.4	23	18 1.2	4.30856	5.18086	14.558	-2.5	45.8	1.9	255.2	4.3	145.6	149.5E	
JAN 30	6 31 6.5	23	18 55.2	4.32589	5.18160	15.457	-2.5	45.6	1.9	196.4	4.2	145.8	147.2E	
FEB 1	6 30 18.3	23	19 46.1	4.34425	5.18234	16.331	-2.5	45.4	1.9	137.5	4.1	146.0	145.0E	
FEB 3	6 29 32.7	23	20 33.8	4.36361	5.18308	17.181	-2.4	45.2	1.9	78.7	4.0	146.1	142.8E	
FEB 5	6 28 50.1	23	21 18.4	4.38393	5.18381	18.005	-2.4	45.0	1.9	19.8	3.9	146.3	140.6E	
FEB 7	6 28 10.5	23	22 0.0	4.40519	5.18455	18.800	-2.4	44.8	1.9	320.9	3.9	146.5	138.4E	
FEB 9	6 27 33.9	23	22 38.9	4.42735	5.18529	19.565	-2.4	44.5	1.9	262.0	3.8	146.6	136.3E	
FEB 11	6 27 0.6	23	23 15.0	4.45037	5.18603	20.298	-2.4	44.3	1.9	203.1	3.7	146.8	134.1E	
FEB 13	6 26 30.4	23	23 48.4	4.47423	5.18677	20.997	-2.4	44.1	1.9	144.2	3.7	147.0	132.0E	
FEB 15	6 26 3.6	23	24 19.2	4.49887	5.18751	21.662	-2.4	43.8	1.9	85.2	3.6	147.1	129.9E	
FEB 17	6 25 40.1	23	24 47.5	4.52425	5.18825	22.291	-2.4	43.6	1.9	26.3	3.6	147.3	127.7E	
FEB 19	6 25 20.1	23	25 13.1	4.55035	5.18899	22.885	-2.3	43.3	1.9	327.3	3.6	147.5	125.7E	
FEB 21	6 25 3.5	23	25 36.4	4.57711	5.18972	23.444	-2.3	43.1	1.9	268.3	3.5	147.6	123.6E	
FEB 23	6 24 50.4	23	25 57.3	4.60449	5.19046	23.967	-2.3	42.8	1.8	209.3	3.5	147.8	121.5E	
FEB 25	6 24 40.7	23	26 15.9	4.63246	5.19120	24.456	-2.3	42.6	1.8	150.2	3.5	148.0	119.5E	
FEB 27	6 24 34.5	23	26 32.4	4.66098	5.19194	24.912	-2.3	42.3	1.8	91.2	3.5	148.1	117.4E	
MAR 1	6 24 31.7	23	26 46.5	4.69000	5.19268	25.337	-2.3	42.0	1.8	32.1	3.5	148.3	115.4E	
MAR 3	6 24 32.4	23	26 58.3	4.71950	5.19342	25.732	-2.3	41.8	1.8	333.0	3.5	148.5	113.4E	
MAR 5	6 24 36.5	23	27 7.7	4.74943	5.19416	26.096	-2.2	41.5	1.8	274.0	3.5	148.6	111.4E	
MAR 7	6 24 44.0	23	27 15.0	4.77977	5.19490	26.428	-2.2	41.2	1.8	214.8	3.5	148.8	109.4E	
MAR 9	6 24 55.0	23	27 20.1	4.81047	5.19564	26.728	-2.2	41.0	1.8	155.7	3.5	149.0	107.5E	
MAR 11	6 25 9.3	23	27 23.1	4.84150	5.19637	26.994	-2.2	40.7	1.8	96.6	3.5	149.1	105.5E	
MAR 13	6 25 27.0	23	27 23.7	4.87282	5.19711	27.226	-2.2	40.5	1.8	37.4	3.6	149.3	103.6E	
MAR 15	6 25 48.0	23	27 22.0	4.90439	5.19785	27.425	-2.2	40.2	1.8	338.3	3.6	149.5	101.7E	
MAR 17	6 26 12.2	23	27 17.9	4.93616	5.19859	27.591	-2.1	39.9	1.8	279.1	3.7	149.6	99.8E	
MAR 19	6 26 39.7	23	27 11.2	4.96811	5.19933	27.725	-2.1	39.7	1.8	219.9	3.7	149.8	97.9E	
MAR 21	6 27 10.4	23	27 2.1	5.00020	5.20007	27.826	-2.1	39.4	1.8	160.7	3.8	150.0	96.0E	
MAR 23	6 27 44.2	23	26 50.4	5.03239	5.20081	27.897	-2.1	39.2	1.8	101.5	3.8	150.1	94.2E	
MAR 25	6 28 21.1	23	26 36.2	5.06464	5.20154	27.939	-2.1	38.9	1.8	42.2	3.9	150.3	92.3E	
MAR 27	6 29 0.9	23	26 19.2	5.09692	5.20228	27.955	-2.1	38.7	1.8	343.0	4.0	150.5	90.5E	
MAR 29	6 29 43.6	23	25 59.3	5.12921	5.20302	27.945	-2.1	38.4	1.8	283.7	4.0	150.6	88.7E	
MAR 31	6 30 29.2	23	25 36.3	5.16147	5.20376	27.912	-2.0	38.2	1.8	224.5	4.1	150.8	86.9E	
APR 2	6 31 17.7	23	25 10.3	5.19368	5.20450	27.854	-2.0	38.0	1.8	165.2	4.2	151.0	85.1E	
APR 4	6 32 8.8	23	24 41.1	5.22581	5.20523	27.772	-2.0	37.7	1.8	105.9	4.3	151.1	83.3E	
APR 6	6 33 2.7	23	24 8.8	5.25783	5.20597	27.665	-2.0	37.5	1.7	46.6	4.4	151.3	81.6E	
APR 8	6 33 59.2	23	23 33.1	5.28971	5.20671	27.531	-2.0	37.3	1.7	347.3	4.5	151.5	79.8E	
APR 10	6 34 58.2	23	22 53.9	5.32142	5.20745	27.372	-2.0	37.0	1.7	288.0	4.6	151.6	78.1E	
APR 12	6 35 59.8	23	22 11.1	5.35294	5.20818	27.188	-2.0	36.8	1.7	228.7	4.7	151.8	76.3E	
APR 14	6 37 3.8	23	21 24.5	5.38422	5.20892	26.979	-2.0	36.6	1.7	169.3	4.8	152.0	74.6E	
APR 16	6 38 10.2	23	20 34.0	5.41526	5.20966	26.746	-1.9	36.4	1.7	110.0	4.9	152.1	72.9E	
APR 18	6 39 18.8	23	19 39.5	5.44601	5.21039	26.490	-1.9	36.2	1.7	50.7	5.0	152.3	71.2E	
APR 20	6 40 29.8	23	18 41.0	5.47645	5.21113	26.213	-1.9	36.0	1.7	351.3	5.2	152.5	69.5E	
APR 22	6 41 42.9	23	17 38.3	5.50656	5.21187	25.916	-1.9	35.8	1.7	291.9	5.3	152.6	67.9E	
APR 24	6 42 58.0	23	16 31.4	5.53631	5.21260	25.601	-1.9	35.6	1.7	232.6	5.4	152.8	66.2E	
APR 26	6 44 15.2	23	15 19.9	5.56569	5.21334	25.270	-1.9	35.4	1.7	173.2	5.6	152.9	64.6E	
APR 28	6 45 34.3	23	14 3.8	5.59468	5.21407	24.923	-1.9	35.2	1.7	113.8	5.7	153.1	62.9E	
APR 30	6 46 55.3	23	13 43.0	5.62327	5.21481	24.562	-1.9	35.1	1.7	54.4	5.8	153.3	61.3E	
MAY 2	6 48 18.2	23	11 17.5	5.65142	5.21555	24.183	-1.9	34.9	1.6	355.1	6.0	153.4	59.7E	
MAY 4	6 49 42.8	23	9 47.3	5.67913	5.21628	23.788	-1.8	34.7	1.6	295.7	6.1	153.6	58.1E	
MAY 6	6 51 9.2	23	8 12.2	5.70637	5.21702	23.375	-1.8	34.5	1.6	236.3	6.3	153.8	56.4E	
MAY 8	6 52 37.2	23	6 31.9	5.73312	5.21775	22.945	-1.8	34.4	1.6	176.9	6.4	153.9	54.8E	
MAY 10	6 54 6.8	23	4 46.5	5.75937	5.21849	22.498	-1.8	34.2	1.6	117.5	6.6	154.1	53.3E	
MAY 12	6 55 37.9	23	2 55.8	5.78509	5.21922	22.034	-1.8	34.1	1.6	58.1	6.8	154.3	51.7E	
MAY 14	6 57 10.6	23	0 59.8	5.81027	5.21995	21.554	-1.8	33.9	1.6	358.6	6.9	154.4	50.1E	
MAY 16	6 58 44.7	22	58 58.4	5.83488	5.22069	21.060	-1.8	33.8	1.6	299.2	7.1	154.6	48.5E	
MAY 18	7 0 20.1	22	56 51.6	5.85892	5.22142	20.552	-1.8	33.6	1.6	239.8	7.3	154.8	47.0E	
MAY 20	7 1 56.9	22	54 39.4	5.88236	5.22215	20.032	-1.8	33.5	1.6	180.4	7.4	154.9	45.4E	
MAY 22	7 3 34.8	22	52 21.6	5.90519	5.22289	19.502	-1.8	33.4	1.5	121.0	7.6	155.1	43.9E	
MAY 24	7 5 13.9	22	49 58.0	5.92741	5.22362	18.963	-1.8	33.3	1.5	61.6	7.8	155.3	42.3E	
MAY 26	7 6 54.2	22	47 28.7	5.94900	5.22435	18.416	-1.8	33.1	1.5	2.1	7.9	155.4	40.8E	
MAY 28	7 8 35.5	22	44 53.8	5.96995	5.22508	17.861	-1.7	33.0	1.5	302.7	8.1	155.6	39.3E	
MAY 30	7 10 17.9	22	42 13.1	5.99026	5.22582	17.296	-1.7	32.9	1.5	243.3	8.3	155.8	37.8E	
JUN 1	7 12 1.2	22	39 26.8	6.00991	5.22655	16.721	-1.7	32.8	1.5	183.9	8.5	155.9	36.2E	
JUN 3	7 13 45.5	22	36 34.6	6.02889	5.22728	16.135	-1.7	32.7	1.5	124.4	8.6	156.1	34.7E	
JUN 5	7 15 30.6	22	33 36.7	6.04718	5.22801	15.538	-1.7	32.6	1.5	65.0	8.8	156.2	33.2E	
JUN 7	7 17 16.6	22	30 32.8	6.06478	5.22874	14.931	-1.7	32.5	1.4	5.6	9.0	156.4	31.7E	
JUN 9	7 19 3.4	22	27 23.0	6.08167	5.22947	14.313	-1.7	32.4	1.4	306.1	9.2	156.6	30.2E	
JUN 11	7 20 50.9	22	24 7.3	6.09784	5.23020	13.686	-1.7	32.3	1.4	246.7	9.4	156.7	28.7E	
JUN 13	7 22 39.1	22	20 45.8	6.11329	5.23093	13.051	-1.7	32.2	1.4	187.3	9.5	156.9	27.2E	
JUN 15	7 24 28.0	22	17 18.6	6.12799	5.23166	12.408	-1.7	32.2	1.4	127.9	9.7	157.1	25.7E	
JUN 17	7 26 17.4	22</												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	7 39 15.8	21 46 15.0	6.21841	5.23748	7.120	-1.7	31.7	1.3	12.5	11.2	158.4	13.9E	
JUL 3	7 41 8.3	21 41 57.1	6.22625	5.23821	6.439	-1.7	31.7	1.3	313.1	11.4	158.5	12.5E	
JUL 5	7 43 1.0	21 37 33.8	6.23329	5.23893	5.752	-1.7	31.6	1.3	253.7	11.6	158.7	11.0E	
JUL 7	7 44 53.9	21 33 5.2	6.23954	5.23966	5.061	-1.7	31.6	1.2	194.3	11.7	158.9	9.5E	
JUL 9	7 46 46.9	21 28 31.5	6.24498	5.24038	4.365	-1.7	31.6	1.2	134.9	11.9	159.0	8.1E	
JUL 11	7 48 40.0	21 23 52.6	6.24962	5.24111	3.665	-1.7	31.5	1.2	75.5	12.1	159.2	6.6E	
JUL 13	7 50 33.1	21 19 9.0	6.25345	5.24183	2.963	-1.7	31.5	1.2	16.1	12.3	159.4	5.2E	
JUL 15	7 52 26.2	21 14 20.5	6.25647	5.24256	2.261	-1.7	31.5	1.2	316.7	12.5	159.5	3.7E	
JUL 17	7 54 19.2	21 9 27.2	6.25868	5.24328	1.561	-1.7	31.5	1.2	257.3	12.6	159.7	2.3E	
JUL 19	7 56 12.1	21 4 29.3	6.26008	5.24400	0.862	-1.7	31.5	1.1	198.0	12.8	159.9	0.8E	
JUL 21	7 58 5.0	20 59 26.9	6.26067	5.24472	0.165	-1.7	31.5	1.1	138.6	13.0	160.0	0.8W	
JUL 23	7 59 57.6	20 54 20.3	6.26046	5.24545	-0.531	-1.7	31.5	1.1	79.2	13.2	160.2	2.2W	
JUL 25	8 1 50.0	20 49 9.5	6.25945	5.24617	-1.226	-1.7	31.5	1.1	19.8	13.3	160.3	3.6W	
JUL 27	8 3 42.2	20 43 54.8	6.25763	5.24689	-1.921	-1.7	31.5	1.1	320.5	13.5	160.5	5.1W	
JUL 29	8 5 34.1	20 38 36.2	6.25501	5.24761	-2.617	-1.7	31.5	1.1	261.1	13.7	160.7	6.6W	
JUL 31	8 7 25.7	20 33 13.8	6.25159	5.24833	-3.313	-1.7	31.5	1.0	201.8	13.9	160.8	8.0W	
AUG 2	8 9 17.0	20 27 47.8	6.24736	5.24905	-4.009	-1.7	31.6	1.0	142.4	14.0	161.0	9.5W	
AUG 4	8 11 7.9	20 22 18.4	6.24233	5.24977	-4.706	-1.7	31.6	1.0	83.1	14.2	161.2	11.0W	
AUG 6	8 12 58.3	20 16 45.8	6.23649	5.25049	-5.402	-1.7	31.6	1.0	23.7	14.4	161.3	12.4W	
AUG 8	8 14 48.4	20 11 10.2	6.22985	5.25121	-6.097	-1.7	31.6	1.0	324.4	14.5	161.5	13.9W	
AUG 10	8 16 37.8	20 5 31.8	6.22241	5.25192	-6.789	-1.7	31.7	1.0	265.1	14.7	161.6	15.4W	
AUG 12	8 18 26.8	19 59 51.0	6.21417	5.25264	-7.476	-1.7	31.7	0.9	205.7	14.9	161.8	16.9W	
AUG 14	8 20 15.1	19 54 7.6	6.20514	5.25336	-8.157	-1.7	31.8	0.9	146.4	15.0	162.0	18.4W	
AUG 16	8 22 2.8	19 48 22.1	6.19533	5.25407	-8.830	-1.7	31.8	0.9	87.1	15.2	162.1	19.8W	
AUG 18	8 23 49.8	19 42 34.6	6.18475	5.25479	-9.497	-1.7	31.9	0.9	27.8	15.3	162.3	21.3W	
AUG 20	8 25 36.1	19 36 45.5	6.17339	5.25550	-10.157	-1.7	31.9	0.9	328.5	15.5	162.5	22.8W	
AUG 22	8 27 21.6	19 30 55.1	6.16128	5.25622	-10.812	-1.7	32.0	0.9	269.2	15.7	162.6	24.3W	
AUG 24	8 29 6.4	19 25 3.4	6.14842	5.25693	-11.461	-1.7	32.1	0.8	209.9	15.8	162.8	25.8W	
AUG 26	8 30 50.3	19 19 10.8	6.13481	5.25765	-12.106	-1.7	32.1	0.8	150.6	16.0	163.0	27.3W	
AUG 28	8 32 33.4	19 13 17.4	6.12046	5.25836	-12.746	-1.7	32.2	0.8	91.4	16.1	163.1	28.9W	
AUG 30	8 34 15.6	19 7 23.4	6.10537	5.25907	-13.380	-1.7	32.3	0.8	32.1	16.2	163.3	30.4W	
SEP 1	8 35 56.9	19 1 29.1	6.08955	5.25978	-14.009	-1.7	32.4	0.8	332.8	16.4	163.4	31.9W	
SEP 3	8 37 37.2	18 55 34.9	6.07301	5.26049	-14.632	-1.7	32.5	0.7	273.6	16.5	163.6	33.4W	
SEP 5	8 39 16.5	18 49 41.1	6.05575	5.26121	-15.248	-1.7	32.6	0.7	214.4	16.7	163.8	35.0W	
SEP 7	8 40 54.7	18 43 48.1	6.03779	5.26192	-15.855	-1.7	32.7	0.7	155.1	16.8	163.9	36.5W	
SEP 9	8 42 31.7	18 37 56.0	6.01913	5.26262	-16.451	-1.7	32.8	0.7	95.9	16.9	164.1	38.0W	
SEP 11	8 44 7.6	18 32 5.1	5.99979	5.26333	-17.034	-1.7	32.9	0.7	36.7	17.1	164.3	39.6W	
SEP 13	8 45 42.3	18 26 15.7	5.97979	5.26404	-17.603	-1.7	33.0	0.7	337.5	17.2	164.4	41.2W	
SEP 15	8 47 15.7	18 20 28.3	5.95913	5.26475	-18.160	-1.7	33.1	0.6	278.2	17.3	164.6	42.7W	
SEP 17	8 48 47.8	18 14 43.1	5.93784	5.26546	-18.704	-1.7	33.2	0.6	219.0	17.5	164.7	44.3W	
SEP 19	8 50 18.5	18 9 0.6	5.91593	5.26616	-19.236	-1.7	33.3	0.6	159.9	17.6	164.9	45.9W	
SEP 21	8 51 47.9	18 3 21.0	5.89341	5.26687	-19.756	-1.8	33.5	0.6	100.7	17.7	165.1	47.5W	
SEP 23	8 53 15.9	17 57 44.6	5.87029	5.26758	-20.265	-1.8	33.6	0.6	41.5	17.8	165.2	49.1W	
SEP 25	8 54 42.3	17 52 11.6	5.84660	5.26828	-20.762	-1.8	33.7	0.6	342.3	17.9	165.4	50.7W	
SEP 27	8 56 7.3	17 46 42.4	5.82234	5.26898	-21.247	-1.8	33.9	0.5	283.2	18.0	165.5	52.3W	
SEP 29	8 57 30.7	17 41 17.3	5.79752	5.26969	-21.719	-1.8	34.0	0.5	224.0	18.2	165.7	53.9W	
OCT 1	8 58 52.5	17 35 56.8	5.77217	5.27039	-22.177	-1.8	34.2	0.5	164.9	18.3	165.9	55.5W	
OCT 3	9 0 12.7	17 30 41.4	5.74629	5.27109	-22.621	-1.8	34.3	0.5	105.8	18.4	166.0	57.2W	
OCT 5	9 1 31.0	17 25 31.3	5.71992	5.27179	-23.048	-1.8	34.5	0.5	46.7	18.5	166.2	58.8W	
OCT 7	9 2 47.6	17 20 26.9	5.69306	5.27250	-23.457	-1.8	34.6	0.5	347.6	18.6	166.4	60.5W	
OCT 9	9 4 2.4	17 15 28.6	5.66574	5.27320	-23.844	-1.8	34.8	0.4	288.5	18.7	166.5	62.1W	
OCT 11	9 5 15.3	17 10 36.7	5.63798	5.27390	-24.210	-1.8	35.0	0.4	229.4	18.7	166.7	63.8W	
OCT 13	9 6 26.2	17 5 51.7	5.60982	5.27459	-24.555	-1.8	35.1	0.4	170.3	18.8	166.8	65.5W	
OCT 15	9 7 35.1	17 1 14.1	5.58126	5.27529	-24.879	-1.9	35.3	0.4	111.2	18.9	167.0	67.2W	
OCT 17	9 8 42.0	16 56 44.1	5.55235	5.27599	-25.183	-1.9	35.5	0.4	52.2	19.0	167.2	68.9W	
OCT 19	9 9 46.8	16 52 22.2	5.52309	5.27669	-25.468	-1.9	35.7	0.4	353.1	19.1	167.3	70.6W	
OCT 21	9 10 49.4	16 48 8.6	5.49352	5.27738	-25.732	-1.9	35.9	0.3	294.1	19.2	167.5	72.3W	
OCT 23	9 11 49.9	16 44 3.6	5.46366	5.27808	-25.975	-1.9	36.1	0.3	235.0	19.2	167.6	74.1W	
OCT 25	9 12 48.1	16 40 7.6	5.43352	5.27877	-26.198	-1.9	36.3	0.3	176.0	19.3	167.8	75.8W	
OCT 27	9 13 44.1	16 36 21.1	5.40314	5.27947	-26.399	-1.9	36.5	0.3	117.0	19.4	168.0	77.6W	
OCT 29	9 14 37.7	16 32 44.5	5.37255	5.28016	-26.578	-1.9	36.7	0.3	58.0	19.4	168.1	79.4W	
OCT 31	9 15 28.9	16 29 18.2	5.34175	5.28085	-26.732	-1.9	36.9	0.3	359.0	19.5	168.3	81.1W	
NOV 2	9 16 17.6	16 26 2.6	5.31080	5.28155	-26.860	-2.0	37.1	0.3	300.1	19.6	168.5	82.9W	
NOV 4	9 17 3.7	16 22 57.9	5.27971	5.28224	-26.960	-2.0	37.3	0.2	241.1	19.6	168.6	84.8W	
NOV 6	9 17 47.3	16 20 4.6	5.24853	5.28293	-27.030	-2.0	37.6	0.2	182.1	19.7	168.8	86.6W	
NOV 8	9 18 28.3	16 17 23.0	5.21728	5.28362	-27.069	-2.0	37.8	0.2	123.2	19.7	168.9	88.4W	
NOV 10	9 19 6.5	16 14 53.5	5.18600	5.28431	-27.078	-2.0	38.0	0.2	64.3	19.8	169.1	90.3W	
NOV 12	9 19 42.0	16 12 36.5	5.15474	5.28499	-27.057	-2.0	38.2	0.2	5.4	19.8	169.3	92.1W	
NOV 14	9 20 14.8	16 10 32.3	5.12351	5.28568	-27.008	-2.0	38.5	0.2	306.5	19.8	169.4	94.0W	
NOV 16	9 20 44.7	16 8 41.0	5.09235	5.28637	-26.929	-2.0	38.7	0.2	247.6	19.9	169.6	95.9W	
NOV 18	9 21 11.8	16 7 2.8	5.06131	5.28705	-26.821	-2.1	39.0	0.2	188.7	19.9	169.7	97.8W	
NOV 20	9 21 36.0	16 5 38.0	5.03040	5.28774	-26.684	-2.1	39.2	0.1	129.8	19.9	169.9	99.7W	
NOV 22	9 21 57.2	16 4 26.8	4.99967	5.28842	-26.517	-2.1	39.4	0.1	70.9	20.0	170.1	101.6W	
NOV 24	9 22 15.6	16 3 29.5	4.96916	5.28911	-26.320	-2.1	39.7	0.1	12.1	20.0	170.2	103.6W	
NOV 26	9 22 30.9	16 2 46.4	4.93888	5.28979	-26.091	-2.1	39.9	0.1	313.3	20.0	170.4	105.6W	
NOV 28	9 22 43.1	16 2 17.6	4.90889	5.29047	-25.830	-2.1	40.2	0.1	254.4	20.0	170.5	107.5W	
NOV 30	9 22 52.3	16 2 3.2	4.87922	5.29115	-25.535	-2.1	40.4	0.1	195.6	20.0	170.7	109.5W	
DEC 2	9 22 58.4	16 2 3.4	4.84991	5.29183	-25.204	-2.2	40.6	0.1	136.8	20.0	170.9	111.5W	
DEC 4	9 23 1.3	16 2 18.2	4.82101	5.29251	-24.835	-2.2	40.9	0.1	78.0	20.0	171.0	113.5W	
DEC 6	9 23 1.1	16 2 47.7	4.79255	5.29319	-24.429	-2.2	41.1	0.1	19.2	20.0	171.2	115.6W	
DEC 8	9 22 57.8	16 3 32.1	4.76459	5.29387	-23.987	-2.2	41.4	0.1	320.5	20.0	171.3	117.6W	
DEC 10	9 22 51.4	16 4 31.2	4.73715	5.29454	-23.509	-2.2	41.6	0.1	261.7	20.0	171.5	119.7W	
DEC 12	9 22 41.7	16 5 44.9	4.71029	5.29522	-22.998	-2.2	41.9	0.1	203.0	20.0	171.7	121.8W	
DEC 14	9 22 29.0	16 7 13.0	4.68403	5.29589	-22.454	-2.2	42.1	0.0	144.2	20.0	171.8	123.8W	
DEC 16	9 22 13.2	16 8 55.3	4.65843	5.29657	-21.877	-2.2	42.3	0.0	85.5	20.0	172.0	126.0W	
DEC 18	9 21 54.4	16 10 51.6	4.63350	5.29724	-21.269	-2.3	42.5	0.0	26.8	20.0	172.2	128.1W	
DEC 20													

Date (0 DT)	RA [Mean] (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	9 18 20.1	16 30 33.2	4.48130	5.30193	-16.112	-2.3	44.0	0.0	336.0	19.7	173.3	143.2W
JAN 3	9 17 38.4	16 34 9.6	4.46318	5.30260	-15.246	-2.3	44.2	0.0	277.3	19.7	173.4	145.5W
JAN 5	9 16 54.2	16 37 56.4	4.44609	5.30326	-14.351	-2.4	44.3	0.0	218.6	19.6	173.6	147.7W
JAN 7	9 16 7.7	16 41 52.8	4.43004	5.30393	-13.430	-2.4	44.5	0.0	160.0	19.5	173.7	149.9W
JAN 9	9 15 18.8	16 45 58.2	4.41507	5.30459	-12.485	-2.4	44.7	0.0	101.3	19.5	173.9	152.2W
JAN 11	9 14 27.9	16 50 11.6	4.40120	5.30526	-11.518	-2.4	44.8	0.0	42.7	19.4	174.1	154.4W
JAN 13	9 13 34.9	16 54 32.4	4.38846	5.30592	-10.531	-2.4	44.9	0.0	344.1	19.4	174.2	156.7W
JAN 15	9 12 40.1	16 58 59.6	4.37688	5.30658	-9.526	-2.4	45.0	0.0	285.4	19.3	174.4	158.9W
JAN 17	9 11 43.6	17 3 32.5	4.36646	5.30724	-8.505	-2.4	45.1	0.0	226.8	19.2	174.5	161.2W
JAN 19	9 10 45.6	17 8 10.3	4.35723	5.30790	-7.470	-2.4	45.2	0.0	168.1	19.2	174.7	163.5W
JAN 21	9 9 46.2	17 12 52.3	4.34921	5.30856	-6.420	-2.4	45.3	0.0	109.5	19.1	174.9	165.8W
JAN 23	9 8 45.6	17 17 37.6	4.34240	5.30921	-5.357	-2.4	45.4	0.0	50.9	19.0	175.0	168.0W
JAN 25	9 7 43.9	17 22 25.2	4.33683	5.30987	-4.281	-2.4	45.5	0.0	352.2	18.9	175.2	170.3W
JAN 27	9 6 41.3	17 27 14.3	4.33251	5.31052	-3.194	-2.4	45.5	0.1	293.6	18.9	175.3	172.6W
JAN 29	9 5 38.0	17 32 4.0	4.32945	5.31118	-2.097	-2.4	45.5	0.1	234.9	18.8	175.5	174.9W
JAN 31	9 4 34.3	17 36 53.6	4.32767	5.31183	-0.995	-2.4	45.6	0.1	176.3	18.7	175.7	177.1W
FEB 2	9 3 30.2	17 41 42.1	4.32715	5.31248	0.111	-2.4	45.6	0.1	117.6	18.6	175.8	179.0W
FEB 4	9 2 26.0	17 46 28.6	4.32792	5.31314	1.215	-2.4	45.6	0.1	59.0	18.5	176.0	178.0E
FEB 6	9 1 21.9	17 51 12.3	4.32996	5.31379	2.316	-2.4	45.5	0.1	0.3	18.4	176.1	175.8E
FEB 8	9 0 18.1	17 55 52.3	4.33326	5.31443	3.411	-2.4	45.5	0.1	301.6	18.4	176.3	173.5E
FEB 10	8 59 14.9	18 0 27.6	4.33783	5.31508	4.496	-2.4	45.4	0.1	242.9	18.3	176.5	171.2E
FEB 12	8 58 12.3	18 4 57.7	4.34364	5.31573	5.571	-2.4	45.4	0.1	184.2	18.2	176.6	169.0E
FEB 14	8 57 10.5	18 9 21.8	4.35069	5.31638	6.633	-2.4	45.3	0.1	125.5	18.1	176.8	166.7E
FEB 16	8 56 9.9	18 13 39.4	4.35896	5.31702	7.680	-2.4	45.2	0.1	66.8	18.0	176.9	164.4E
FEB 18	8 55 10.4	18 17 49.7	4.36843	5.31767	8.713	-2.4	45.1	0.1	8.1	18.0	177.1	162.2E
FEB 20	8 54 12.2	18 21 52.3	4.37908	5.31831	9.730	-2.4	45.0	0.1	309.3	17.9	177.3	159.9E
FEB 22	8 53 15.6	18 25 46.4	4.39090	5.31895	10.732	-2.4	44.9	0.1	250.6	17.8	177.4	157.7E
FEB 24	8 52 20.7	18 29 31.5	4.40386	5.31959	11.717	-2.4	44.8	0.1	191.8	17.7	177.6	155.4E
FEB 26	8 51 27.7	18 33 7.3	4.41795	5.32023	12.682	-2.4	44.6	0.1	133.0	17.7	177.7	153.2E
FEB 28	8 50 36.6	18 36 33.4	4.43315	5.32087	13.626	-2.4	44.5	0.1	74.2	17.6	177.9	151.0E
MAR 2	8 49 47.7	18 39 49.3	4.44942	5.32151	14.545	-2.4	44.3	0.2	15.4	17.5	178.0	148.8E
MAR 4	8 49 1.0	18 42 54.6	4.46674	5.32215	15.438	-2.3	44.1	0.2	316.6	17.5	178.2	146.6E
MAR 6	8 48 16.7	18 45 48.9	4.48507	5.32278	16.301	-2.3	44.0	0.2	257.7	17.4	178.4	144.4E
MAR 8	8 47 34.9	18 48 31.9	4.50438	5.32342	17.135	-2.3	43.8	0.2	198.9	17.4	178.5	142.2E
MAR 10	8 46 55.8	18 51 3.3	4.52464	5.32405	17.938	-2.3	43.6	0.2	140.0	17.3	178.7	140.0E
MAR 12	8 46 19.4	18 53 22.9	4.54581	5.32469	18.709	-2.3	43.4	0.2	81.1	17.3	178.8	137.9E
MAR 14	8 45 45.7	18 55 30.7	4.56785	5.32532	19.447	-2.3	43.2	0.2	22.2	17.2	179.0	135.8E
MAR 16	8 45 14.9	18 57 26.5	4.59072	5.32595	20.153	-2.3	42.9	0.2	323.3	17.2	179.2	133.6E
MAR 18	8 44 47.0	18 59 10.3	4.61439	5.32658	20.828	-2.3	42.7	0.2	264.4	17.1	179.3	131.5E
MAR 20	8 44 22.0	19 0 41.9	4.63882	5.32721	21.473	-2.2	42.5	0.2	205.4	17.1	179.5	129.5E
MAR 22	8 43 60.0	19 2 1.1	4.66398	5.32784	22.089	-2.2	42.3	0.2	146.5	17.1	179.6	127.4E
MAR 24	8 43 41.0	19 3 8.2	4.68984	5.32846	22.674	-2.2	42.0	0.2	87.5	17.0	179.8	125.3E
MAR 26	8 43 25.1	19 4 3.0	4.71635	5.32909	23.229	-2.2	41.8	0.2	28.5	17.0	180.0	123.3E
MAR 28	8 43 12.3	19 4 45.7	4.74349	5.32971	23.752	-2.2	41.6	0.2	329.5	17.0	180.1	121.2E
MAR 30	8 43 2.6	19 5 16.2	4.77121	5.33034	24.241	-2.2	41.3	0.2	270.5	17.0	180.3	119.2E
APR 1	8 42 56.0	19 5 34.5	4.79948	5.33096	24.696	-2.2	41.1	0.2	211.4	17.0	180.4	117.2E
APR 3	8 42 52.5	19 5 40.4	4.82825	5.33158	25.115	-2.1	40.8	0.2	152.3	17.0	180.6	115.2E
APR 5	8 42 52.2	19 5 34.2	4.85748	5.33220	25.501	-2.1	40.6	0.2	93.3	17.0	180.7	113.3E
APR 7	8 42 55.0	19 5 15.8	4.88714	5.33282	25.851	-2.1	40.3	0.2	34.2	17.0	180.9	111.3E
APR 9	8 43 0.9	19 4 45.4	4.91719	5.33344	26.168	-2.1	40.1	0.2	335.1	17.0	181.1	109.4E
APR 11	8 43 9.8	19 4 3.2	4.94758	5.33405	26.451	-2.1	39.8	0.2	276.0	17.0	181.2	107.4E
APR 13	8 43 21.8	19 3 9.2	4.97828	5.33467	26.702	-2.1	39.6	0.2	216.8	17.0	181.4	105.5E
APR 15	8 43 36.8	19 2 3.7	5.00926	5.33528	26.923	-2.1	39.4	0.2	157.7	17.0	181.5	103.6E
APR 17	8 43 54.8	19 0 46.5	5.04047	5.33590	27.116	-2.0	39.1	0.2	98.5	17.1	181.7	101.7E
APR 19	8 44 15.6	18 59 17.9	5.07189	5.33651	27.281	-2.0	38.9	0.2	39.4	17.1	181.8	99.9E
APR 21	8 44 39.4	18 57 37.9	5.10348	5.33712	27.420	-2.0	38.6	0.2	340.2	17.1	182.0	98.0E
APR 23	8 45 6.0	18 55 46.9	5.13522	5.33773	27.531	-2.0	38.4	0.2	281.0	17.2	182.2	96.2E
APR 25	8 45 35.4	18 53 45.0	5.16708	5.33834	27.614	-2.0	38.2	0.2	221.8	17.2	182.3	94.3E
APR 27	8 46 7.5	18 51 32.1	5.19901	5.33894	27.668	-2.0	37.9	0.2	162.5	17.2	182.5	92.5E
APR 29	8 46 42.3	18 49 8.3	5.23098	5.33955	27.693	-2.0	37.7	0.2	103.3	17.3	182.6	90.7E
MAY 1	8 47 19.8	18 46 33.8	5.26297	5.34016	27.689	-2.0	37.5	0.2	44.1	17.3	182.8	88.9E
MAY 3	8 47 59.9	18 43 48.5	5.29494	5.34076	27.657	-1.9	37.2	0.2	344.8	17.4	182.9	87.2E
MAY 5	8 48 42.6	18 40 52.7	5.32685	5.34136	27.596	-1.9	37.0	0.2	285.6	17.4	183.1	85.4E
MAY 7	8 49 27.7	18 37 46.5	5.35868	5.34196	27.509	-1.9	36.8	0.2	226.3	17.5	183.3	83.6E
MAY 9	8 50 15.3	18 34 30.1	5.39040	5.34257	27.396	-1.9	36.6	0.2	167.0	17.6	183.4	81.9E
MAY 11	8 51 5.2	18 31 3.7	5.42196	5.34316	27.259	-1.9	36.4	0.2	107.7	17.6	183.6	80.2E
MAY 13	8 51 57.4	18 27 27.3	5.45336	5.34376	27.099	-1.9	36.2	0.2	48.4	17.7	183.7	78.5E
MAY 15	8 52 51.8	18 23 41.0	5.48456	5.34436	26.919	-1.9	35.9	0.2	349.1	17.8	183.9	76.8E
MAY 17	8 53 48.4	18 19 45.0	5.51554	5.34496	26.720	-1.8	35.7	0.2	289.8	17.9	184.1	75.1E
MAY 19	8 54 47.2	18 15 39.4	5.54628	5.34555	26.502	-1.8	35.5	0.2	230.5	17.9	184.2	73.4E
MAY 21	8 55 47.9	18 11 24.5	5.57676	5.34614	26.264	-1.8	35.4	0.2	171.1	18.0	184.4	71.7E
MAY 23	8 56 50.7	18 7 0.3	5.60695	5.34674	26.006	-1.8	35.2	0.2	111.8	18.1	184.5	70.0E
MAY 25	8 57 55.4	18 2 26.9	5.63683	5.34733	25.726	-1.8	35.0	0.2	52.4	18.2	184.7	68.4E
MAY 27	8 59 1.9	17 57 44.4	5.66638	5.34792	25.426	-1.8	34.8	0.1	353.1	18.3	184.8	66.7E
MAY 29	9 0 10.3	17 52 52.7	5.69556	5.34850	25.104	-1.8	34.6	0.1	293.7	18.4	185.0	65.1E
MAY 31	9 1 20.5	17 47 52.1	5.72436	5.34909	24.762	-1.8	34.4	0.1	234.4	18.4	185.2	63.5E
JUN 2	9 2 32.5	17 42 42.6	5.75276	5.34968	24.401	-1.8	34.3	0.1	175.0	18.5	185.3	61.9E
JUN 4	9 3 46.1	17 37 24.6	5.78073	5.35026	24.020	-1.8	34.1	0.1	115.6	18.6	185.5	60.2E
JUN 6	9 5 1.2	17 31 58.1	5.80825	5.35085	23.622	-1.7	33.9	0.1	56.2	18.7	185.6	58.6E
JUN 8	9 6 17.9	17 26 23.2	5.83530	5.35143	23.208	-1.7	33.8	0.1	356.9	18.8	185.8	57.0E
JUN 10	9 7 36.1	17 20 40.2	5.86186	5.35201	22.779	-1.7	33.6	0.1	297.5	18.9	185.9	55.5E
JUN 12	9 8 55.6	17 14 48.9	5.88792	5.35259	22.338	-1.7	33.5	0.1	238.1	19.0	186.1	53.9E
JUN 14	9 10 16.6	17 8 49.7	5.91346	5.35317	21.884	-1.7	33.3	0.1	178.7	19.1	186.2	52.3E
JUN 16	9 11 38.9	17 2 42.7	5.93847	5.35374	21.419	-1.7	33.2	0.1	119.3	19.2	186.4	50.7E
JUN 18	9 13 2.4	16 56 28.1	5.96294	5.35432	20.942	-1.7	33.1	0.0	59.9	19.3	186.6	49.2E
JUN 20	9 14 27.1	16 50 6.1	5.98685	5.35489	20.450	-1.7	32.9	0.0</				

Date (0 DT)	RA [Mean] (h m s)			Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	9	23	18.3	16 9 20.7	6.11764	5.35832	17.211	-1.6	32.2	-0.1	4.0	20.1	187.7	38.4E
JUL 4	9	24	50.2	16 2 9.1	6.13718	5.35888	16.627	-1.6	32.1	-0.1	304.6	20.2	187.8	36.9E
JUL 6	9	26	23.0	15 54 51.1	6.15605	5.35945	16.033	-1.6	32.0	-0.1	245.2	20.3	188.0	35.4E
JUL 8	9	27	56.5	15 47 26.7	6.17422	5.36001	15.432	-1.6	31.9	-0.1	185.8	20.4	188.1	33.9E
JUL 10	9	29	30.7	15 39 56.2	6.19170	5.36057	14.824	-1.6	31.8	-0.1	126.4	20.5	188.3	32.4E
JUL 12	9	31	5.7	15 32 19.7	6.20847	5.36113	14.209	-1.6	31.8	-0.1	67.0	20.6	188.4	30.8E
JUL 14	9	32	41.3	15 24 37.4	6.22452	5.36169	13.589	-1.6	31.7	-0.1	7.6	20.7	188.6	29.3E
JUL 16	9	34	17.5	15 16 49.6	6.23986	5.36225	12.962	-1.6	31.6	-0.2	308.1	20.8	188.8	27.8E
JUL 18	9	35	54.3	15 8 56.4	6.25447	5.36280	12.327	-1.6	31.5	-0.2	248.7	20.9	188.9	26.4E
JUL 20	9	37	31.6	15 0 57.8	6.26834	5.36336	11.683	-1.6	31.5	-0.2	189.3	21.0	189.1	24.9E
JUL 22	9	39	9.4	14 52 54.0	6.28146	5.36391	11.031	-1.6	31.4	-0.2	129.9	21.1	189.2	23.4E
JUL 24	9	40	47.7	14 44 45.0	6.29382	5.36447	10.370	-1.6	31.3	-0.2	70.5	21.2	189.4	21.9E
JUL 26	9	42	26.4	14 36 31.1	6.30541	5.36502	9.701	-1.6	31.3	-0.2	11.1	21.3	189.5	20.4E
JUL 28	9	44	5.6	14 28 12.5	6.31623	5.36557	9.024	-1.6	31.2	-0.3	311.7	21.4	189.7	18.9E
JUL 30	9	45	45.1	14 19 49.5	6.32626	5.36612	8.340	-1.6	31.2	-0.3	252.3	21.5	189.8	17.4E
AUG 1	9	47	24.8	14 11 22.3	6.33549	5.36666	7.650	-1.6	31.1	-0.3	192.9	21.6	190.0	15.9E
AUG 3	9	49	4.9	14 2 50.9	6.34393	5.36721	6.956	-1.6	31.1	-0.3	133.5	21.7	190.2	14.4E
AUG 5	9	50	45.1	13 54 15.7	6.35157	5.36775	6.260	-1.6	31.0	-0.3	74.1	21.8	190.3	13.0E
AUG 7	9	52	25.6	13 45 36.7	6.35839	5.36830	5.563	-1.6	31.0	-0.3	14.7	21.9	190.5	11.5E
AUG 9	9	54	6.2	13 36 54.2	6.36442	5.36884	4.864	-1.6	31.0	-0.4	315.3	22.0	190.6	10.0E
AUG 11	9	55	46.9	13 28 8.6	6.36963	5.36938	4.164	-1.6	31.0	-0.4	255.9	22.1	190.8	8.5E
AUG 13	9	57	27.7	13 19 20.1	6.37404	5.36992	3.463	-1.6	30.9	-0.4	196.5	22.2	190.9	7.1E
AUG 15	9	59	8.5	13 10 28.7	6.37763	5.37045	2.758	-1.6	30.9	-0.4	137.2	22.3	191.1	5.6E
AUG 17	10	0	49.4	13 1 34.6	6.38041	5.37099	2.050	-1.6	30.9	-0.4	77.8	22.4	191.3	4.1E
AUG 19	10	2	30.3	12 52 37.9	6.38237	5.37152	1.338	-1.6	30.9	-0.4	18.4	22.5	191.4	2.7E
AUG 21	10	4	11.1	12 43 38.9	6.38350	5.37206	0.623	-1.6	30.9	-0.5	319.0	22.6	191.6	1.3E
AUG 23	10	5	51.9	12 34 37.8	6.38381	5.37259	-0.096	-1.6	30.9	-0.5	259.7	22.7	191.7	0.9W
AUG 25	10	7	32.5	12 25 34.9	6.38328	5.37312	-0.816	-1.6	30.9	-0.5	200.3	22.7	191.9	2.1W
AUG 27	10	9	13.0	12 16 30.4	6.38192	5.37365	-1.539	-1.6	30.9	-0.5	141.0	22.8	192.0	3.5W
AUG 29	10	10	53.3	12 7 24.7	6.37973	5.37418	-2.262	-1.6	30.9	-0.5	81.6	22.9	192.2	5.0W
AUG 31	10	12	33.4	11 58 17.9	6.37670	5.37470	-2.984	-1.6	30.9	-0.6	22.3	23.0	192.3	6.5W
SEP 2	10	14	13.2	11 49 10.2	6.37284	5.37523	-3.703	-1.6	30.9	-0.6	322.9	23.1	192.5	8.0W
SEP 4	10	15	52.8	11 40 2.0	6.36815	5.37575	-4.417	-1.6	31.0	-0.6	263.6	23.2	192.7	9.5W
SEP 6	10	17	32.0	11 30 53.5	6.36264	5.37627	-5.128	-1.6	31.0	-0.6	204.2	23.2	192.8	11.0W
SEP 8	10	19	10.8	11 21 45.1	6.35631	5.37679	-5.834	-1.6	31.0	-0.6	144.9	23.3	193.0	12.5W
SEP 10	10	20	49.2	11 12 37.0	6.34916	5.37731	-6.538	-1.6	31.1	-0.7	85.6	23.4	193.1	14.0W
SEP 12	10	22	27.1	11 3 29.4	6.34121	5.37783	-7.238	-1.6	31.1	-0.7	26.3	23.5	193.3	15.5W
SEP 14	10	24	4.7	10 54 22.5	6.33244	5.37835	-7.937	-1.6	31.1	-0.7	327.0	23.5	193.4	17.0W
SEP 16	10	25	41.7	10 45 16.5	6.32287	5.37886	-8.634	-1.6	31.2	-0.7	267.7	23.6	193.6	18.5W
SEP 18	10	27	18.2	10 36 11.7	6.31250	5.37937	-9.328	-1.6	31.2	-0.7	208.4	23.7	193.7	20.0W
SEP 20	10	28	54.1	10 27 8.3	6.30133	5.37989	-10.020	-1.6	31.3	-0.8	149.1	23.7	193.9	21.6W
SEP 22	10	30	29.5	10 18 6.8	6.28936	5.38040	-10.708	-1.6	31.3	-0.8	89.8	23.8	194.0	23.1W
SEP 24	10	32	4.2	10 9 7.4	6.27659	5.38091	-11.393	-1.6	31.4	-0.8	30.5	23.9	194.2	24.6W
SEP 26	10	33	38.2	10 0 10.5	6.26304	5.38141	-12.071	-1.6	31.5	-0.8	331.2	23.9	194.4	26.2W
SEP 28	10	35	11.4	9 51 16.4	6.24871	5.38192	-12.742	-1.6	31.5	-0.8	272.0	24.0	194.5	27.7W
SEP 30	10	36	43.9	9 42 25.3	6.23361	5.38242	-13.403	-1.6	31.6	-0.9	212.7	24.1	194.7	29.3W
OCT 2	10	38	15.6	9 33 37.5	6.21775	5.38293	-14.054	-1.6	31.7	-0.9	153.5	24.1	194.8	30.9W
OCT 4	10	39	46.5	9 24 53.6	6.20115	5.38343	-14.694	-1.6	31.8	-0.9	94.2	24.2	195.0	32.4W
OCT 6	10	41	16.4	9 16 13.8	6.18381	5.38393	-15.324	-1.6	31.9	-0.9	35.0	24.2	195.1	34.0W
OCT 8	10	42	45.4	9 7 38.4	6.16575	5.38443	-15.945	-1.6	32.0	-0.9	335.7	24.3	195.3	35.6W
OCT 10	10	44	13.5	8 59 7.8	6.14698	5.38492	-16.556	-1.6	32.1	-1.0	276.5	24.3	195.4	37.2W
OCT 12	10	45	40.5	8 50 42.0	6.12751	5.38542	-17.158	-1.6	32.2	-1.0	217.3	24.4	195.6	38.8W
OCT 14	10	47	6.6	8 42 21.4	6.10735	5.38591	-17.752	-1.6	32.3	-1.0	158.1	24.4	195.8	40.3W
OCT 16	10	48	31.5	8 34 6.4	6.08650	5.38641	-18.336	-1.6	32.4	-1.0	98.9	24.5	195.9	42.0W
OCT 18	10	49	55.4	8 25 57.4	6.06499	5.38690	-18.910	-1.6	32.5	-1.0	39.7	24.5	196.1	43.6W
OCT 20	10	51	18.0	8 17 54.6	6.04282	5.38739	-19.473	-1.6	32.6	-1.1	340.5	24.6	196.2	45.2W
OCT 22	10	52	39.5	8 9 58.6	6.02001	5.38788	-20.024	-1.7	32.7	-1.1	281.4	24.6	196.4	46.8W
OCT 24	10	53	59.7	8 2 9.7	5.99657	5.38836	-20.563	-1.7	32.9	-1.1	222.2	24.6	196.5	48.4W
OCT 26	10	55	18.5	7 54 28.2	5.97252	5.38885	-21.085	-1.7	33.0	-1.1	163.0	24.7	196.7	50.1W
OCT 28	10	56	36.0	7 46 54.5	5.94787	5.38933	-21.591	-1.7	33.1	-1.1	103.9	24.7	196.8	51.7W
OCT 30	10	57	52.1	7 39 29.0	5.92265	5.38982	-22.077	-1.7	33.3	-1.1	44.7	24.8	197.0	53.4W
NOV 1	10	59	6.7	7 32 12.1	5.89687	5.39030	-22.545	-1.7	33.4	-1.2	345.6	24.8	197.1	55.1W
NOV 3	11	0	19.8	7 25 4.4	5.87057	5.39077	-22.995	-1.7	33.6	-1.2	286.5	24.8	197.3	56.7W
NOV 5	11	1	31.3	7 18 6.0	5.84376	5.39125	-23.427	-1.7	33.7	-1.2	227.4	24.9	197.5	58.4W
NOV 7	11	2	41.2	7 11 17.4	5.81646	5.39173	-23.841	-1.7	33.9	-1.2	168.3	24.9	197.6	60.1W
NOV 9	11	3	49.5	7 4 38.6	5.78869	5.39220	-24.239	-1.7	34.1	-1.2	109.2	24.9	197.8	61.8W
NOV 11	11	4	56.1	6 58 10.2	5.76047	5.39268	-24.618	-1.7	34.2	-1.3	50.1	24.9	197.9	63.5W
NOV 13	11	6	1.0	6 51 52.5	5.73182	5.39315	-24.980	-1.8	34.4	-1.3	351.0	25.0	198.1	65.3W
NOV 15	11	7	4.1	6 45 45.8	5.70277	5.39362	-25.322	-1.8	34.6	-1.3	292.0	25.0	198.2	67.0W
NOV 17	11	8	5.3	6 39 50.8	5.67333	5.39409	-25.645	-1.8	34.7	-1.3	232.9	25.0	198.4	68.7W
NOV 19	11	9	4.6	6 34 7.7	5.64353	5.39455	-25.948	-1.8	34.9	-1.3	173.9	25.0	198.5	70.5W
NOV 21	11	10	1.9	6 28 36.9	5.61340	5.39502	-26.227	-1.8	35.1	-1.3	114.9	25.1	198.7	72.3W
NOV 23	11	10	57.3	6 23 18.9	5.58295	5.39548	-26.482	-1.8	35.3	-1.4	55.8	25.1	198.8	74.0W
NOV 25	11	11	50.5	6 18 13.9	5.55223	5.39595	-26.710	-1.8	35.5	-1.4	356.8	25.1	199.0	75.8W
NOV 27	11	12	41.7	6 13 22.5	5.52126	5.39641	-26.910	-1.8	35.7	-1.4	297.8	25.1	199.2	77.6W
NOV 29	11	13	30.6	6 8 45.0	5.49008	5.39687	-27.081	-1.8	35.9	-1.4	238.8	25.1	199.3	79.4W
DEC 1	11	14	17.3	6 4 22.0	5.45871	5.39732	-27.226	-1.9	36.1	-1.4	179.9	25.1	199.5	81.2W
DEC 3	11	15	1.7	6 0 13.5	5.42719	5.39778	-27.343	-1.9	36.3	-1.4	120.9	25.2	199.6	83.1W
DEC 5	11	15	43.8	5 56 19.9	5.39555	5.39823	-27.435	-1.9	36.5	-1.5	61.9	25.2	199.8	84.9W
DEC 7	11	16	23.6	5 52 41.5	5.36382	5.39869	-27.499	-1.9	36.8	-1.5	3.0	25.2	199.9	86.8W
DEC 9	11	17	0.9	5 49 18.4	5.33203	5.39914	-27.537	-1.9	37.0	-1.5	304.1	25.2	200.1	88.6W
DEC 11	11	17	35.8	5 46 11.										

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	11 21 5.0	5 30 34.4	4.95844	5.40443	-25.568	-2.1	39.8	-1.6	317.8	25.3	201.9	112.0W
JAN 4	11 21 7.3	5 30 56.3	4.92912	5.40486	-25.186	-2.1	40.0	-1.7	259.0	25.3	202.1	114.0W
JAN 6	11 21 6.7	5 31 36.2	4.90027	5.40529	-24.771	-2.1	40.2	-1.7	200.2	25.3	202.2	116.1W
JAN 8	11 21 3.3	5 32 34.1	4.87191	5.40572	-24.323	-2.1	40.5	-1.7	141.4	25.3	202.4	118.1W
JAN 10	11 20 57.1	5 33 50.1	4.84409	5.40614	-23.844	-2.1	40.7	-1.7	82.7	25.3	202.5	120.2W
JAN 12	11 20 47.9	5 35 24.1	4.81684	5.40657	-23.331	-2.1	40.9	-1.7	23.9	25.3	202.7	122.3W
JAN 14	11 20 36.0	5 37 15.9	4.79020	5.40699	-22.785	-2.1	41.2	-1.7	325.2	25.3	202.9	124.4W
JAN 16	11 20 21.1	5 39 25.4	4.76421	5.40741	-22.204	-2.2	41.4	-1.7	266.5	25.3	203.0	126.5W
JAN 18	11 20 3.5	5 41 52.3	4.73891	5.40783	-21.587	-2.2	41.6	-1.7	207.8	25.3	203.2	128.6W
JAN 20	11 19 43.1	5 44 36.4	4.71435	5.40825	-20.934	-2.2	41.8	-1.7	149.0	25.2	203.3	130.7W
JAN 22	11 19 20.0	5 47 37.4	4.69056	5.40866	-20.246	-2.2	42.0	-1.7	90.3	25.2	203.5	132.9W
JAN 24	11 18 54.1	5 50 55.0	4.66759	5.40908	-19.523	-2.2	42.2	-1.7	31.7	25.2	203.6	135.0W
JAN 26	11 18 25.6	5 54 28.7	4.64547	5.40949	-18.768	-2.2	42.4	-1.7	333.0	25.2	203.8	137.2W
JAN 28	11 17 54.6	5 58 17.9	4.62424	5.40990	-17.983	-2.2	42.6	-1.7	274.3	25.2	203.9	139.4W
JAN 30	11 17 21.0	6 2 21.8	4.60394	5.41031	-17.170	-2.2	42.8	-1.7	215.6	25.2	204.1	141.6W
FEB 1	11 16 45.1	6 6 39.9	4.58458	5.41072	-16.331	-2.2	43.0	-1.7	157.0	25.2	204.2	143.8W
FEB 3	11 16 6.8	6 11 11.6	4.56622	5.41112	-15.466	-2.3	43.2	-1.7	98.3	25.2	204.4	146.0W
FEB 5	11 15 26.3	6 15 56.1	4.54886	5.41153	-14.576	-2.3	43.3	-1.7	39.6	25.2	204.5	148.2W
FEB 7	11 14 43.7	6 20 52.8	4.53255	5.41193	-13.664	-2.3	43.5	-1.7	341.0	25.2	204.7	150.4W
FEB 9	11 13 59.1	6 26 1.0	4.51730	5.41233	-12.729	-2.3	43.6	-1.7	282.3	25.1	204.8	152.6W
FEB 11	11 13 12.5	6 31 19.7	4.50315	5.41273	-11.772	-2.3	43.8	-1.7	223.7	25.1	205.0	154.9W
FEB 13	11 12 24.2	6 36 48.2	4.49011	5.41313	-10.793	-2.3	43.9	-1.7	165.1	25.1	205.2	157.1W
FEB 15	11 11 34.1	6 42 25.6	4.47822	5.41353	-9.792	-2.3	44.0	-1.7	106.4	25.1	205.3	159.3W
FEB 17	11 10 42.6	6 48 10.8	4.46750	5.41392	-8.772	-2.3	44.1	-1.7	47.8	25.1	205.5	161.6W
FEB 19	11 9 49.7	6 54 3.2	4.45796	5.41431	-7.733	-2.3	44.2	-1.7	349.1	25.1	205.6	163.8W
FEB 21	11 8 55.5	7 0 1.5	4.44963	5.41470	-6.679	-2.3	44.3	-1.7	290.5	25.0	205.8	166.1W
FEB 23	11 8 0.2	7 6 4.8	4.44253	5.41509	-5.613	-2.3	44.4	-1.7	231.9	25.0	205.9	168.3W
FEB 25	11 7 4.0	7 12 11.8	4.43667	5.41548	-4.539	-2.3	44.4	-1.7	173.2	25.0	206.1	170.6W
FEB 27	11 6 7.0	7 18 21.4	4.43204	5.41587	-3.460	-2.3	44.5	-1.7	114.6	25.0	206.2	172.8W
FEB 29	11 5 9.5	7 24 32.3	4.42867	5.41625	-2.377	-2.3	44.5	-1.7	55.9	24.9	206.4	175.0W
MAR 2	11 4 11.6	7 30 43.7	4.42655	5.41663	-1.293	-2.3	44.5	-1.7	357.3	24.9	206.5	177.1W
MAR 4	11 3 13.5	7 36 54.5	4.42568	5.41701	-0.210	-2.3	44.5	-1.7	298.6	24.9	206.7	178.6W
MAR 6	11 2 15.3	7 43 3.6	4.42606	5.41739	0.871	-2.3	44.5	-1.7	239.9	24.9	206.8	177.5E
MAR 8	11 1 17.1	7 49 10.0	4.42769	5.41777	1.948	-2.3	44.5	-1.6	181.2	24.9	207.0	175.5E
MAR 10	11 0 19.2	7 55 12.8	4.43056	5.41815	3.021	-2.3	44.5	-1.6	122.6	24.8	207.1	173.3E
MAR 12	10 59 21.7	8 1 10.7	4.43466	5.41852	4.089	-2.3	44.5	-1.6	63.9	24.8	207.3	171.1E
MAR 14	10 58 24.8	8 7 3.0	4.44000	5.41889	5.151	-2.3	44.4	-1.6	5.2	24.8	207.5	168.9E
MAR 16	10 57 28.6	8 12 48.6	4.44656	5.41926	6.205	-2.3	44.3	-1.6	306.5	24.7	207.6	166.6E
MAR 18	10 56 33.3	8 18 26.8	4.45433	5.41963	7.249	-2.3	44.3	-1.6	247.7	24.7	207.8	164.4E
MAR 20	10 55 39.0	8 23 56.6	4.46330	5.42000	8.278	-2.3	44.2	-1.6	189.0	24.7	207.9	162.2E
MAR 22	10 54 46.0	8 29 17.0	4.47344	5.42036	9.291	-2.3	44.1	-1.6	130.3	24.7	208.1	160.0E
MAR 24	10 53 54.3	8 34 27.0	4.48475	5.42073	10.284	-2.3	44.0	-1.6	71.5	24.6	208.2	157.8E
MAR 26	10 53 4.1	8 39 25.8	4.49719	5.42109	11.255	-2.3	43.8	-1.6	12.7	24.6	208.4	155.6E
MAR 28	10 52 15.6	8 44 12.7	4.51074	5.42145	12.203	-2.3	43.7	-1.5	314.0	24.6	208.5	153.4E
MAR 30	10 51 28.9	8 48 47.1	4.52537	5.42181	13.127	-2.3	43.6	-1.5	255.2	24.6	208.7	151.2E
APR 1	10 50 44.0	8 53 8.4	4.54105	5.42217	14.025	-2.3	43.4	-1.5	196.4	24.5	208.8	149.0E
APR 3	10 50 1.1	8 57 16.0	4.55776	5.42252	14.897	-2.3	43.3	-1.5	137.5	24.5	209.0	146.9E
APR 5	10 49 20.3	9 1 9.6	4.57545	5.42287	15.742	-2.2	43.1	-1.5	78.7	24.5	209.1	144.7E
APR 7	10 48 41.7	9 4 48.4	4.59411	5.42323	16.562	-2.2	42.9	-1.5	19.8	24.5	209.3	142.6E
APR 9	10 48 5.3	9 8 12.2	4.61370	5.42358	17.356	-2.2	42.7	-1.5	321.0	24.5	209.4	140.5E
APR 11	10 47 31.3	9 11 20.7	4.63420	5.42392	18.125	-2.2	42.5	-1.5	262.1	24.4	209.6	138.3E
APR 13	10 46 59.7	9 14 13.5	4.65556	5.42427	18.867	-2.2	42.3	-1.5	203.2	24.4	209.7	136.2E
APR 15	10 46 30.5	9 16 50.4	4.67777	5.42461	19.581	-2.2	42.1	-1.5	144.3	24.4	209.9	134.2E
APR 17	10 46 3.9	9 19 11.1	4.70079	5.42496	20.264	-2.2	41.9	-1.4	85.4	24.4	210.0	132.1E
APR 19	10 45 39.9	9 21 15.2	4.72457	5.42530	20.914	-2.2	41.7	-1.4	26.4	24.4	210.2	130.0E
APR 21	10 45 18.6	9 23 2.6	4.74909	5.42564	21.532	-2.2	41.5	-1.4	327.5	24.4	210.4	128.0E
APR 23	10 44 60.0	9 24 32.9	4.77430	5.42597	22.116	-2.1	41.3	-1.4	268.5	24.4	210.5	126.0E
APR 25	10 44 44.1	9 25 46.2	4.80017	5.42631	22.667	-2.1	41.1	-1.4	209.5	24.3	210.7	123.9E
APR 27	10 44 30.9	9 26 42.5	4.82665	5.42664	23.183	-2.1	40.8	-1.4	150.5	24.3	210.8	121.9E
APR 29	10 44 20.5	9 27 21.8	4.85371	5.42698	23.666	-2.1	40.6	-1.4	91.5	24.3	211.0	119.9E
MAY 1	10 44 12.9	9 27 44.1	4.88131	5.42731	24.116	-2.1	40.4	-1.4	32.4	24.3	211.1	118.0E
MAY 3	10 44 8.0	9 27 49.5	4.90941	5.42763	24.534	-2.1	40.2	-1.4	333.4	24.3	211.3	116.0E
MAY 5	10 44 5.8	9 27 38.0	4.93797	5.42796	24.923	-2.1	39.9	-1.4	274.3	24.3	211.4	114.1E
MAY 7	10 44 6.5	9 27 9.8	4.96697	5.42829	25.283	-2.0	39.7	-1.4	215.2	24.3	211.6	112.1E
MAY 9	10 44 9.8	9 26 25.0	4.99637	5.42861	25.615	-2.0	39.5	-1.4	156.1	24.3	211.7	110.2E
MAY 11	10 44 15.9	9 25 23.8	5.02614	5.42893	25.918	-2.0	39.2	-1.4	97.0	24.3	211.9	108.3E
MAY 13	10 44 24.6	9 24 6.4	5.05624	5.42925	26.192	-2.0	39.0	-1.4	37.9	24.3	212.0	106.4E
MAY 15	10 44 36.1	9 22 32.8	5.08663	5.42957	26.435	-2.0	38.8	-1.3	338.8	24.3	212.2	104.6E
MAY 17	10 44 50.2	9 20 43.1	5.11729	5.42989	26.646	-2.0	38.5	-1.3	279.6	24.4	212.3	102.7E
MAY 19	10 45 7.0	9 18 37.4	5.14818	5.43020	26.826	-2.0	38.3	-1.3	220.5	24.4	212.5	100.8E
MAY 21	10 45 26.4	9 16 15.8	5.17925	5.43051	26.976	-2.0	38.1	-1.3	161.3	24.4	212.6	99.0E
MAY 23	10 45 48.4	9 13 38.7	5.21048	5.43082	27.094	-1.9	37.8	-1.3	102.1	24.4	212.8	97.2E
MAY 25	10 46 12.9	9 10 46.4	5.24183	5.43113	27.182	-1.9	37.6	-1.3	42.9	24.4	212.9	95.4E
MAY 27	10 46 39.9	9 7 39.0	5.27327	5.43144	27.242	-1.9	37.4	-1.3	343.7	24.4	213.1	93.6E
MAY 29	10 47 9.3	9 4 16.9	5.30476	5.43174	27.274	-1.9	37.2	-1.3	284.5	24.4	213.3	91.8E
MAY 31	10 47 41.2	9 0 40.3	5.33627	5.43205	27.279	-1.9	36.9	-1.3	225.3	24.4	213.4	90.0E
JUN 2	10 48 15.4	8 56 49.4	5.36777	5.43235	27.261	-1.9	36.7	-1.3	166.0	24.5	213.6	88.3E
JUN 4	10 48 51.9	8 52 44.5	5.39924	5.43265	27.220	-1.9	36.5	-1.3	106.8	24.5	213.7	86.5E
JUN 6	10 49 30.7	8 48 26.0	5.43064	5.43295	27.157	-1.8	36.3	-1.3	47.5	24.5	213.9	84.8E
JUN 8	10 50 11.7	8 43 54.2	5.46197	5.43324	27.072	-1.8	36.1	-1.3	348.2	24.5	214.0	83.0E
JUN 10	10 50 54.8	8 39 9.2	5.49318	5.43354	26.963	-1.8	35.9	-1.3	289.0	24.5	214.2	81.3E
JUN 12	10 51 40.1	8 34 11.3	5.52425	5.43383	26.830	-1.8	35.7	-1.3	229.7	24.6	214.3	79.6E
JUN 14	10 52 27.4	8 29 0.6	5.55515	5.43412	26.672	-1.8	35.5	-1.3	170.4	24.6	214.5	77.9E
JUN 16	10 53 16.8	8 23 37.3	5.58586	5.43441	26.490	-1.8	35.3	-1.3	111.1	24.6	214.6	76.2E
JUN 18	10 54 8.2	8 18 1.7	5.61634	5.43470	26.285	-1.8	35.1	-1.3	51.7	24.6	214.8	74.6E
JUN 20	10 55 1.5	8 12 14.1	5.64657	5.43499	26.055	-						

Date (0 DT)	RA (h m s)	(Mean) (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	11 0 59.1	7 33 33.5	5.82129	5.43666	24.253	-1.7	33.9	-1.4	356.4	24.8	215.8	63.1E	
JUL 4	11 2 4.5	7 26 30.1	5.84910	5.43693	23.895	-1.7	33.7	-1.4	297.0	24.9	216.0	61.4E	
JUL 6	11 3 11.4	7 19 17.2	5.87649	5.43720	23.521	-1.7	33.5	-1.4	237.6	24.9	216.1	59.8E	
JUL 8	11 4 19.8	7 11 54.8	5.90343	5.43747	23.130	-1.7	33.4	-1.4	178.3	24.9	216.3	58.2E	
JUL 10	11 5 29.7	7 4 23.2	5.92992	5.43774	22.722	-1.7	33.2	-1.4	118.9	25.0	216.4	56.7E	
JUL 12	11 6 40.9	6 56 42.4	5.95592	5.43801	22.296	-1.7	33.1	-1.4	59.5	25.0	216.6	55.1E	
JUL 14	11 7 53.5	6 48 52.7	5.98142	5.43827	21.853	-1.6	33.0	-1.4	0.1	25.0	216.7	53.5E	
JUL 16	11 9 7.5	6 40 54.5	6.00640	5.43853	21.393	-1.6	32.8	-1.4	300.7	25.0	216.9	51.9E	
JUL 18	11 10 22.7	6 32 47.9	6.03084	5.43879	20.916	-1.6	32.7	-1.4	241.4	25.1	217.1	50.3E	
JUL 20	11 11 39.1	6 24 33.4	6.05471	5.43905	20.423	-1.6	32.6	-1.5	182.0	25.1	217.2	48.8E	
JUL 22	11 12 56.7	6 16 11.1	6.07801	5.43931	19.916	-1.6	32.4	-1.5	122.6	25.1	217.4	47.2E	
JUL 24	11 14 15.4	6 7 41.4	6.10072	5.43956	19.395	-1.6	32.3	-1.5	63.2	25.1	217.5	45.7E	
JUL 26	11 15 35.2	5 59 4.4	6.12282	5.43981	18.862	-1.6	32.2	-1.5	3.8	25.2	217.7	44.1E	
JUL 28	11 16 56.1	5 50 20.5	6.14429	5.44006	18.319	-1.6	32.1	-1.5	304.4	25.2	217.8	42.6E	
JUL 30	11 18 18.0	5 41 29.9	6.16514	5.44031	17.767	-1.6	32.0	-1.5	245.0	25.2	218.0	41.0E	
AUG 1	11 19 40.8	5 32 32.9	6.18534	5.44056	17.206	-1.6	31.9	-1.5	185.6	25.2	218.1	39.5E	
AUG 3	11 21 4.5	5 23 30.0	6.20488	5.44081	16.635	-1.6	31.8	-1.5	126.2	25.3	218.3	38.0E	
AUG 5	11 22 29.2	5 14 21.1	6.22376	5.44105	16.054	-1.6	31.7	-1.5	66.7	25.3	218.4	36.4E	
AUG 7	11 23 54.6	5 5 6.5	6.24197	5.44129	15.461	-1.6	31.6	-1.6	7.3	25.3	218.6	34.9E	
AUG 9	11 25 20.9	4 55 46.3	6.25948	5.44153	14.856	-1.6	31.5	-1.6	307.9	25.3	218.7	33.4E	
AUG 11	11 26 48.0	4 46 20.7	6.27628	5.44177	14.239	-1.6	31.4	-1.6	248.5	25.4	218.9	31.9E	
AUG 13	11 28 15.9	4 36 50.0	6.29237	5.44200	13.611	-1.6	31.3	-1.6	189.1	25.4	219.0	30.3E	
AUG 15	11 29 44.4	4 27 14.6	6.30772	5.44224	12.972	-1.5	31.3	-1.6	129.7	25.4	219.2	28.8E	
AUG 17	11 31 13.6	4 17 34.7	6.32234	5.44247	12.323	-1.5	31.2	-1.6	70.3	25.4	219.3	27.3E	
AUG 19	11 32 43.5	4 7 50.7	6.33619	5.44270	11.664	-1.5	31.1	-1.6	10.9	25.4	219.5	25.8E	
AUG 21	11 34 13.9	3 58 2.6	6.34928	5.44293	10.999	-1.5	31.1	-1.7	311.5	25.4	219.6	24.3E	
AUG 23	11 35 44.9	3 48 10.8	6.36160	5.44316	10.327	-1.5	31.0	-1.7	252.1	25.5	219.8	22.7E	
AUG 25	11 37 16.4	3 38 15.4	6.37314	5.44338	9.650	-1.5	30.9	-1.7	192.7	25.5	219.9	21.2E	
AUG 27	11 38 48.4	3 28 17.0	6.38389	5.44361	8.970	-1.5	30.9	-1.7	133.3	25.5	220.1	19.7E	
AUG 29	11 40 20.9	3 18 15.7	6.39386	5.44383	8.286	-1.5	30.8	-1.7	73.9	25.5	220.2	18.2E	
AUG 31	11 41 53.7	3 8 11.8	6.40303	5.44405	7.597	-1.5	30.8	-1.7	14.5	25.5	220.4	16.7E	
SEP 2	11 43 26.9	2 58 5.6	6.41141	5.44426	6.903	-1.5	30.7	-1.7	315.1	25.5	220.5	15.2E	
SEP 4	11 45 0.5	2 47 57.0	6.41898	5.44448	6.203	-1.5	30.7	-1.8	255.7	25.5	220.7	13.7E	
SEP 6	11 46 34.4	2 37 46.3	6.42574	5.44469	5.496	-1.5	30.7	-1.8	196.3	25.5	220.8	12.2E	
SEP 8	11 48 8.7	2 27 33.8	6.43168	5.44490	4.782	-1.5	30.7	-1.8	137.0	25.5	221.0	10.7E	
SEP 10	11 49 43.1	2 17 19.8	6.43679	5.44511	4.063	-1.5	30.6	-1.8	77.6	25.5	221.1	9.2E	
SEP 12	11 51 17.9	2 7 4.5	6.44106	5.44532	3.339	-1.5	30.6	-1.8	18.2	25.5	221.3	7.7E	
SEP 14	11 52 52.7	1 56 48.2	6.44450	5.44553	2.609	-1.5	30.6	-1.8	318.8	25.5	221.5	6.2E	
SEP 16	11 54 27.8	1 46 31.3	6.44709	5.44573	1.877	-1.5	30.6	-1.8	259.4	25.5	221.6	4.7E	
SEP 18	11 56 3.0	1 36 13.9	6.44884	5.44594	1.142	-1.5	30.6	-1.9	200.1	25.5	221.8	3.2E	
SEP 20	11 57 38.2	1 25 56.4	6.44973	5.44614	0.407	-1.5	30.6	-1.9	140.7	25.5	221.9	1.9E	
SEP 22	11 59 13.5	1 15 38.9	6.44978	5.44634	-0.327	-1.5	30.6	-1.9	81.3	25.5	222.1	1.1E	
SEP 24	12 0 48.8	1 5 21.9	6.44898	5.44653	-1.059	-1.5	30.6	-1.9	22.0	25.5	222.2	1.9W	
SEP 26	12 2 24.1	0 55 5.7	6.44733	5.44673	-1.790	-1.5	30.6	-1.9	322.6	25.5	222.4	3.2W	
SEP 28	12 3 59.3	0 44 50.5	6.44485	5.44692	-2.520	-1.5	30.6	-1.9	263.3	25.5	222.5	4.7W	
SEP 30	12 5 34.4	0 34 36.5	6.44152	5.44711	-3.249	-1.5	30.6	-2.0	203.9	25.5	222.7	6.2W	
OCT 2	12 7 9.4	0 24 23.8	6.43734	5.44730	-3.979	-1.5	30.6	-2.0	144.6	25.5	222.8	7.7W	
OCT 4	12 8 44.3	0 14 12.7	6.43233	5.44749	-4.709	-1.5	30.6	-2.0	85.3	25.5	223.0	9.3W	
OCT 6	12 10 19.0	0 4 3.4	6.42647	5.44767	-5.440	-1.5	30.7	-2.0	26.0	25.4	223.1	10.8W	
OCT 8	12 11 53.4	0 -6 -3.7	6.41976	5.44786	-6.171	-1.5	30.7	-2.0	326.6	25.4	223.3	12.3W	
OCT 10	12 13 27.6	0 -16 -8.3	6.41221	5.44804	-6.901	-1.5	30.7	-2.0	267.3	25.4	223.4	13.9W	
OCT 12	12 15 1.6	0 -26 -10.2	6.40382	5.44822	-7.630	-1.5	30.8	-2.1	208.0	25.4	223.6	15.4W	
OCT 14	12 16 35.1	0 -36 -8.9	6.39459	5.44840	-8.355	-1.5	30.8	-2.1	148.7	25.4	223.7	17.0W	
OCT 16	12 18 8.3	0 -46 -4.4	6.38452	5.44857	-9.077	-1.5	30.9	-2.1	89.4	25.4	223.9	18.5W	
OCT 18	12 19 41.1	0 -55 -56.3	6.37362	5.44875	-9.791	-1.5	30.9	-2.1	30.1	25.3	224.0	20.1W	
OCT 20	12 21 13.5	-1 -5 -44.2	6.36191	5.44892	-10.498	-1.5	31.0	-2.1	330.8	25.3	224.2	21.7W	
OCT 22	12 22 45.3	-1 -15 -27.8	6.34938	5.44909	-11.197	-1.5	31.0	-2.1	271.5	25.3	224.3	23.2W	
OCT 24	12 24 16.6	-1 -25 -6.7	6.33604	5.44926	-11.888	-1.5	31.1	-2.2	212.3	25.3	224.5	24.8W	
OCT 26	12 25 47.3	-1 -34 -40.8	6.32192	5.44942	-12.571	-1.5	31.2	-2.2	153.0	25.2	224.6	26.4W	
OCT 28	12 27 17.4	-1 -44 -9.8	6.30701	5.44959	-13.247	-1.5	31.3	-2.2	93.7	25.2	224.8	28.0W	
OCT 30	12 28 46.9	-1 -53 -33.5	6.29132	5.44975	-13.916	-1.5	31.3	-2.2	34.5	25.2	224.9	29.6W	
NOV 1	12 30 15.7	-2 -2 -51.8	6.27486	5.44991	-14.579	-1.6	31.4	-2.2	335.2	25.2	225.1	31.2W	
NOV 3	12 31 43.7	-2 -12 -4.2	6.25764	5.45007	-15.236	-1.6	31.5	-2.2	276.0	25.1	225.2	32.8W	
NOV 5	12 33 11.0	-2 -21 -10.5	6.23967	5.45023	-15.884	-1.6	31.6	-2.3	216.8	25.1	225.4	34.4W	
NOV 7	12 34 37.5	-2 -30 -10.3	6.22095	5.45038	-16.525	-1.6	31.7	-2.3	157.5	25.1	225.5	36.0W	
NOV 9	12 36 3.1	-2 -39 -3.2	6.20150	5.45054	-17.157	-1.6	31.8	-2.3	98.3	25.0	225.7	37.6W	
NOV 11	12 37 27.8	-2 -47 -49.1	6.18132	5.45069	-17.778	-1.6	31.9	-2.3	39.1	25.0	225.8	39.2W	
NOV 13	12 38 51.6	-2 -56 -27.5	6.16044	5.45084	-18.387	-1.6	32.0	-2.3	339.9	25.0	226.0	40.9W	
NOV 15	12 40 14.3	-3 -4 -58.3	6.13885	5.45098	-18.981	-1.6	32.1	-2.3	280.7	24.9	226.1	42.5W	
NOV 17	12 41 36.0	-3 -13 -21.0	6.11659	5.45113	-19.560	-1.6	32.2	-2.4	221.5	24.9	226.3	44.2W	
NOV 19	12 42 56.6	-3 -21 -35.2	6.09367	5.45127	-20.122	-1.6	32.4	-2.4	162.4	24.9	226.4	45.8W	
NOV 21	12 44 15.9	-3 -29 -40.6	6.07012	5.45142	-20.668	-1.6	32.5	-2.4	103.2	24.8	226.6	47.5W	
NOV 23	12 45 34.1	-3 -37 -36.9	6.04594	5.45156	-21.198	-1.6	32.6	-2.4	44.0	24.8	226.7	49.2W	
NOV 25	12 46 51.0	-3 -45 -24.1	6.02115	5.45169	-21.714	-1.6	32.7	-2.4	344.9	24.8	226.9	50.8W	
NOV 27	12 48 6.7	-3 -53 -1.8	5.99578	5.45183	-22.214	-1.6	32.9	-2.4	285.8	24.7	227.1	52.5W	
NOV 29	12 49 21.0	-4 0 -29.8	5.96984	5.45196	-22.700	-1.6	33.0	-2.5	226.6	24.7	227.2	54.2W	
DEC 1	12 50 33.9	-4 -7 -47.7	5.94335	5.45209	-23.170	-1.7	33.2	-2.5	167.5	24.7	227.4	55.9W	
DEC 3	12 51 45.4	-4 -14 -55.3	5.91632	5.45223	-23.625	-1.7	33.3	-2.5	108.4	24.6	227.5	57.6W	
DEC 5	12 52 55.4	-4 -21 -52.1	5.88878	5.45235	-24.062	-1.7	33.5	-2.5	49.3	24.6	227.7	59.3W	
DEC 7	12 54 3.8	-4 -28 -37.8	5.86074	5.45248	-24.482	-1.7	33.6	-2.5	350.2	24.5	227.8	61.1W	
DEC 9	12 55 10.5	-4 -35 -12.2	5.83223	5.45260	-24.882	-1.7	33.8	-2.5	291.1	24.5	228.0	62.8W	
DEC 11	12 56 15.7	-4 -41 -35.0	5.80327	5.45273	-25.260	-1.7	34.0	-2.6	232.0	24.5	228.1	64.5W	
DEC 13	12 57 19.1	-4 -47 -45.8	5.77388	5.45285	-25.615	-1.7	34.1	-2.6	173.0	24.4	228.3	66.3W	
DEC 15	12 58 20.7	-4 -53 -44.2	5.74410	5.45297	-25.945	-1.7	34.3	-2.6	113.9	24.4	228.4	68.0W	
DEC 17	12 59 20.4	-4 -59 -29.8	5.71395	5.45308	-26.249	-1.7	34.5	-2.6	54.9	24.4	228.6	69.8W	
DEC 19	13 0 18.2	-5 -5 -2.5	5.68347	5.45320	-26.529	-1.7	34.7	-2.6	355.9	24.3	228.7	71.6W	
DEC 21	13 1												

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	13 6 5.4	-5-37-28.2	5.46299	5.45394	-27.807	-1.8	36.1	-2.7	302.9	24.1	229.8	84.3W
JAN 4	13 6 46.2	-5-41 -8.2	5.43082	5.45404	-27.888	-1.8	36.3	-2.7	244.0	24.1	229.9	86.2W
JAN 6	13 7 24.6	-5-44-33.0	5.39858	5.45414	-27.941	-1.9	36.5	-2.7	185.0	24.1	230.1	88.0W
JAN 8	13 8 0.5	-5-47-42.3	5.36629	5.45424	-27.963	-1.9	36.7	-2.8	126.1	24.1	230.2	89.9W
JAN 10	13 8 34.0	-5-50-35.8	5.33399	5.45433	-27.953	-1.9	37.0	-2.8	67.2	24.0	230.4	91.8W
JAN 12	13 9 4.9	-5-53-13.2	5.30172	5.45442	-27.909	-1.9	37.2	-2.8	8.3	24.0	230.5	93.7W
JAN 14	13 9 33.3	-5-55-34.3	5.26953	5.45451	-27.831	-1.9	37.4	-2.8	309.4	24.0	230.7	95.6W
JAN 16	13 9 59.0	-5-57-38.8	5.23744	5.45460	-27.721	-1.9	37.6	-2.8	250.5	24.0	230.8	97.5W
JAN 18	13 10 22.0	-5-59-26.7	5.20550	5.45468	-27.578	-1.9	37.9	-2.8	191.7	24.0	231.0	99.5W
JAN 20	13 10 42.4	-6 0-58.1	5.17374	5.45477	-27.405	-1.9	38.1	-2.8	132.8	24.0	231.1	101.4W
JAN 22	13 11 0.1	-6 -2-12.8	5.14220	5.45485	-27.201	-2.0	38.3	-2.8	74.0	24.0	231.3	103.4W
JAN 24	13 11 15.1	-6 -3-10.7	5.11091	5.45493	-26.965	-2.0	38.6	-2.8	15.1	23.9	231.4	105.4W
JAN 26	13 11 27.3	-6 -3-51.6	5.07992	5.45501	-26.699	-2.0	38.8	-2.9	316.3	23.9	231.6	107.3W
JAN 28	13 11 36.7	-6 -4-15.5	5.04924	5.45508	-26.401	-2.0	39.0	-2.9	257.5	23.9	231.7	109.3W
JAN 30	13 11 43.2	-6 -4-22.2	5.01894	5.45516	-26.072	-2.0	39.3	-2.9	198.7	23.9	231.9	111.3W
FEB 1	13 11 47.0	-6 -4-11.7	4.98903	5.45523	-25.709	-2.0	39.5	-2.9	139.9	23.9	232.0	113.4W
FEB 3	13 11 47.9	-6 -3-44.1	4.95955	5.45530	-25.313	-2.0	39.8	-2.9	81.1	23.9	232.2	115.4W
FEB 5	13 11 46.0	-6 -2-59.3	4.93056	5.45537	-24.882	-2.1	40.0	-2.9	22.4	23.9	232.3	117.4W
FEB 7	13 11 41.2	-6 -1-57.4	4.90208	5.45543	-24.415	-2.1	40.2	-2.9	323.6	23.9	232.5	119.5W
FEB 9	13 11 33.6	-6 0-38.3	4.87417	5.45550	-23.910	-2.1	40.4	-2.9	264.9	23.9	232.6	121.5W
FEB 11	13 11 23.1	-5-59 -2.1	4.84686	5.45556	-23.370	-2.1	40.7	-2.9	206.1	23.9	232.8	123.6W
FEB 13	13 11 9.8	-5-57 -9.0	4.82019	5.45562	-22.795	-2.1	40.9	-2.9	147.4	23.9	232.9	125.7W
FEB 15	13 10 53.7	-5-54-59.4	4.79421	5.45568	-22.187	-2.1	41.1	-2.9	88.7	24.0	233.1	127.8W
FEB 17	13 10 34.9	-5-52-33.7	4.76895	5.45573	-21.549	-2.1	41.3	-2.9	29.9	24.0	233.2	129.9W
FEB 19	13 10 13.4	-5-49-52.0	4.74444	5.45579	-20.881	-2.1	41.6	-2.9	331.2	24.0	233.4	132.0W
FEB 21	13 9 49.3	-5-46-54.9	4.72072	5.45584	-20.183	-2.2	41.8	-2.9	272.5	24.0	233.5	134.1W
FEB 23	13 9 22.5	-5-43-42.4	4.69782	5.45589	-19.457	-2.2	42.0	-3.0	213.9	24.0	233.7	136.3W
FEB 25	13 8 53.2	-5-40-15.1	4.67578	5.45594	-18.703	-2.2	42.2	-3.0	155.2	24.0	233.8	138.4W
FEB 27	13 8 21.4	-5-36-33.3	4.65462	5.45599	-17.921	-2.2	42.4	-3.0	96.5	24.1	234.0	140.6W
MAR 1	13 7 47.2	-5-32-37.6	4.63438	5.45603	-17.112	-2.2	42.5	-3.0	37.8	24.1	234.2	142.7W
MAR 3	13 7 10.7	-5-28-28.4	4.61510	5.45607	-16.275	-2.2	42.7	-3.0	339.2	24.1	234.3	144.9W
MAR 5	13 6 32.0	-5-24 -6.4	4.59679	5.45612	-15.411	-2.2	42.9	-3.0	280.5	24.1	234.5	147.1W
MAR 7	13 5 51.1	-5-19-32.0	4.57950	5.45615	-14.519	-2.2	43.0	-3.0	221.8	24.2	234.6	149.3W
MAR 9	13 5 8.2	-5-14-45.8	4.56326	5.45619	-13.600	-2.2	43.2	-3.0	163.2	24.2	234.8	151.5W
MAR 11	13 4 23.3	-5 -9-48.6	4.54809	5.45623	-12.657	-2.3	43.3	-3.0	104.6	24.2	234.9	153.7W
MAR 13	13 3 36.6	-5 -4-41.2	4.53402	5.45626	-11.693	-2.3	43.5	-3.0	45.9	24.2	235.1	155.9W
MAR 15	13 2 48.2	-4-59-24.6	4.52108	5.45629	-10.711	-2.3	43.6	-3.0	347.3	24.3	235.2	158.1W
MAR 17	13 1 58.4	-4-53-59.7	4.50928	5.45632	-9.713	-2.3	43.7	-3.0	288.6	24.3	235.4	160.3W
MAR 19	13 1 7.1	-4-48-27.3	4.49864	5.45635	-8.702	-2.3	43.8	-3.0	230.0	24.3	235.5	162.5W
MAR 21	13 0 14.6	-4-42-48.3	4.48918	5.45637	-7.679	-2.3	43.9	-2.9	171.3	24.4	235.7	164.7W
MAR 23	12 59 20.9	-4-37 -3.7	4.48090	5.45640	-6.646	-2.3	44.0	-2.9	112.7	24.4	235.8	166.9W
MAR 25	12 58 26.4	-4-31-14.3	4.47383	5.45642	-5.604	-2.3	44.1	-2.9	54.0	24.4	236.0	169.1W
MAR 27	12 57 31.0	-4-25-21.0	4.46796	5.45644	-4.555	-2.3	44.1	-2.9	355.4	24.4	236.1	171.3W
MAR 29	12 56 34.9	-4-19-24.9	4.46330	5.45645	-3.500	-2.3	44.2	-2.9	296.7	24.5	236.3	173.5W
MAR 31	12 55 38.4	-4-13-27.0	4.45987	5.45647	-2.439	-2.3	44.2	-2.9	238.1	24.5	236.4	175.6W
APR 2	12 54 41.5	-4 -7-28.3	4.45767	5.45648	-1.374	-2.3	44.2	-2.9	179.4	24.5	236.6	177.6W
APR 4	12 53 44.4	-4 -1-29.5	4.45670	5.45649	-0.304	-2.3	44.2	-2.9	120.8	24.6	236.7	179.4W
APR 6	12 52 47.3	-3-55-31.8	4.45696	5.45650	0.766	-2.3	44.2	-2.9	62.1	24.6	236.9	176.9E
APR 8	12 51 50.3	-3-49-36.1	4.45846	5.45651	1.835	-2.3	44.2	-2.9	3.4	24.6	237.0	174.9E
APR 10	12 50 53.6	-3-43-43.7	4.46119	5.45652	2.898	-2.3	44.2	-2.9	304.7	24.7	237.2	172.8E
APR 12	12 49 57.4	-3-37-55.7	4.46515	5.45652	3.953	-2.3	44.2	-2.9	246.0	24.7	237.3	170.6E
APR 14	12 49 1.8	-3-32-13.0	4.47032	5.45652	4.997	-2.3	44.1	-2.9	187.3	24.7	237.5	168.4E
APR 16	12 48 7.1	-3-26-36.8	4.47669	5.45652	6.028	-2.3	44.0	-2.8	128.6	24.7	237.6	166.2E
APR 18	12 47 13.2	-3-21 -7.7	4.48424	5.45652	7.043	-2.3	44.0	-2.8	69.9	24.8	237.8	164.0E
APR 20	12 46 20.5	-3-15-46.7	4.49295	5.45652	8.043	-2.3	43.9	-2.8	11.2	24.8	237.9	161.8E
APR 22	12 45 28.9	-3-10-34.6	4.50281	5.45651	9.025	-2.3	43.8	-2.8	312.4	24.8	238.1	159.7E
APR 24	12 44 38.7	-3 -5-32.3	4.51379	5.45650	9.989	-2.3	43.7	-2.8	253.7	24.8	238.2	157.5E
APR 26	12 43 50.0	-3 0-40.5	4.52587	5.45649	10.934	-2.3	43.6	-2.8	194.9	24.9	238.4	155.3E
APR 28	12 43 2.9	-2-55-59.9	4.53904	5.45648	11.861	-2.3	43.4	-2.8	136.1	24.9	238.5	153.2E
APR 30	12 42 17.4	-2-51-31.3	4.55326	5.45647	12.769	-2.2	43.3	-2.8	77.3	24.9	238.7	151.1E
MAY 2	12 41 33.8	-2-47-15.2	4.56853	5.45645	13.657	-2.2	43.2	-2.8	18.5	24.9	238.8	148.9E
MAY 4	12 40 52.0	-2-43-12.1	4.58480	5.45643	14.523	-2.2	43.0	-2.7	319.7	24.9	239.0	146.8E
MAY 6	12 40 12.3	-2-39-22.8	4.60207	5.45641	15.365	-2.2	42.8	-2.7	260.8	24.9	239.1	144.7E
MAY 8	12 39 34.7	-2-35-47.9	4.62029	5.45639	16.180	-2.2	42.7	-2.7	202.0	25.0	239.3	142.6E
MAY 10	12 38 59.3	-2-32-28.0	4.63943	5.45637	16.967	-2.2	42.5	-2.7	143.1	25.0	239.4	140.5E
MAY 12	12 38 26.1	-2-29-23.7	4.65947	5.45634	17.724	-2.2	42.3	-2.7	84.2	25.0	239.6	138.4E
MAY 14	12 37 55.3	-2-26-35.1	4.68037	5.45632	18.451	-2.2	42.1	-2.7	25.3	25.0	239.7	136.3E
MAY 16	12 37 27.0	-2-24 -2.7	4.70208	5.45629	19.147	-2.2	41.9	-2.7	326.4	25.0	239.9	134.3E
MAY 18	12 37 1.0	-2-21-46.7	4.72458	5.45626	19.811	-2.2	41.7	-2.7	267.5	25.0	240.0	132.3E
MAY 20	12 36 37.6	-2-19-47.3	4.74784	5.45622	20.445	-2.1	41.5	-2.6	208.6	25.0	240.2	130.2E
MAY 22	12 36 16.7	-2-18 -4.6	4.77180	5.45619	21.048	-2.1	41.3	-2.6	149.6	25.0	240.3	128.2E
MAY 24	12 35 58.4	-2-16-39.0	4.79645	5.45615	21.622	-2.1	41.1	-2.6	90.6	25.0	240.5	126.2E
MAY 26	12 35 42.7	-2-15-30.5	4.82174	5.45611	22.167	-2.1	40.9	-2.6	31.6	25.0	240.6	124.2E
MAY 28	12 35 29.6	-2-14-39.0	4.84765	5.45607	22.686	-2.1	40.7	-2.6	332.6	25.1	240.8	122.3E
MAY 30	12 35 19.0	-2-14 -4.6	4.87413	5.45603	23.176	-2.1	40.4	-2.6	273.6	25.1	240.9	120.3E
JUN 1	12 35 11.2	-2-13-47.3	4.90117	5.45598	23.636	-2.1	40.2	-2.6	214.6	25.1	241.1	118.3E
JUN 3	12 35 5.9	-2-13-47.3	4.92873	5.45594	24.067	-2.1	40.0	-2.6	155.5	25.1	241.2	116.4E
JUN 5	12 35 3.4	-2-14 -4.5	4.95676	5.45589	24.465	-2.0	39.8	-2.6	96.5	25.1	241.4	114.5E
JUN 7	12 35 3.5	-2-14-39.1	4.98523	5.45584	24.832	-2.0	39.5	-2.6	37.4	25.1	241.5	112.6E
JUN 9	12 35 6.2	-2-15-30.9	5.01411	5.45578	25.165	-2.0	39.3	-2.6	338.3	25.1	241.7	110.7E
JUN 11	12 35 11.7	-2-16-39.7	5.04336	5.45573	25.467	-2.0	39.1	-2.5	279.2	25.1	241.8	108.8E
JUN 13	12 35 19.7	-2-18 -5.4	5.07293	5.45567	25.736	-2.0	38.9	-2.5	220.1	25.1	242.0	106.9E
JUN 15	12 35 30.3	-2-19-47.7	5.10280	5.45561	25.975	-2.0	38.6	-2.5	161.0	25.1	242.1	105.1E
JUN 17	12 35 43.6	-2-21-46.4	5.13293	5.45555	26.184	-2.0	38.4	-2.5	101.8	25.0	242.3	103.2E
JUN 19	12 35 59.4	-2-24 -1.5	5.16328	5.45549	26.364	-1.9	38.2	-2.5	42.7	25.0	242.5	101.4E
JUN 21	12 36 17.7	-2-26-32.5	5.19382	5.45543	26.517	-1.9						

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 1	12 38 26.0	-2-42-57.9	5.34839	5.45508	26.904	-1.9	36.9	-2.5	47.5	25.0	243.4	90.6E	
JUL 3	12 38 58.8	-2-46-59.3	5.37947	5.45500	26.903	-1.9	36.6	-2.5	348.2	25.0	243.5	88.9E	
JUL 5	12 39 33.9	-2-51-15.1	5.41053	5.45492	26.874	-1.8	36.4	-2.5	289.0	25.0	243.7	87.1E	
JUL 7	12 40 11.2	-2-55-44.8	5.44154	5.45484	26.818	-1.8	36.2	-2.5	229.7	24.9	243.8	85.4E	
JUL 9	12 40 50.8	-3 0-28.2	5.47248	5.45476	26.736	-1.8	36.0	-2.5	170.5	24.9	244.0	83.7E	
JUL 11	12 41 32.5	-3 5-24.8	5.50330	5.45468	26.628	-1.8	35.8	-2.5	111.2	24.9	244.1	82.0E	
JUL 13	12 42 16.4	-3-10-34.3	5.53398	5.45459	26.495	-1.8	35.6	-2.5	51.9	24.9	244.3	80.3E	
JUL 15	12 43 2.3	-3-15-56.4	5.56450	5.45450	26.339	-1.8	35.4	-2.5	352.6	24.9	244.4	78.6E	
JUL 17	12 43 50.3	-3-21-30.8	5.59482	5.45441	26.160	-1.8	35.2	-2.5	293.3	24.8	244.6	76.9E	
JUL 19	12 44 40.3	-3-27-17.1	5.62493	5.45432	25.961	-1.8	35.0	-2.5	234.0	24.8	244.7	75.2E	
JUL 21	12 45 32.3	-3-33-15.1	5.65479	5.45423	25.743	-1.8	34.9	-2.5	174.7	24.8	244.9	73.5E	
JUL 23	12 46 26.1	-3-39-24.1	5.68439	5.45413	25.507	-1.7	34.7	-2.5	115.4	24.8	245.0	71.9E	
JUL 25	12 47 21.8	-3-45-43.9	5.71371	5.45403	25.252	-1.7	34.5	-2.5	56.0	24.7	245.2	70.2E	
JUL 27	12 48 19.3	-3-52-14.3	5.74272	5.45393	24.979	-1.7	34.3	-2.5	356.7	24.7	245.3	68.6E	
JUL 29	12 49 18.6	-3-58-55.0	5.77141	5.45383	24.685	-1.7	34.2	-2.5	297.4	24.7	245.5	66.9E	
JUL 31	12 50 19.6	-4 5-45.8	5.79974	5.45373	24.370	-1.7	34.0	-2.5	238.0	24.7	245.6	65.3E	
AUG 2	12 51 22.4	-4-12-46.5	5.82770	5.45362	24.034	-1.7	33.8	-2.5	178.7	24.6	245.8	63.7E	
AUG 4	12 52 26.8	-4-19-56.5	5.85526	5.45352	23.678	-1.7	33.7	-2.5	119.3	24.6	245.9	62.0E	
AUG 6	12 53 32.8	-4-27-15.6	5.88239	5.45341	23.302	-1.7	33.5	-2.5	59.9	24.6	246.1	60.4E	
AUG 8	12 54 40.4	-4-34-43.4	5.90908	5.45330	22.906	-1.7	33.4	-2.5	0.6	24.5	246.2	58.8E	
AUG 10	12 55 49.6	-4-42-19.6	5.93531	5.45318	22.493	-1.7	33.2	-2.5	301.2	24.5	246.4	57.2E	
AUG 12	12 57 0.2	-4-50 3.8	5.96104	5.45307	22.062	-1.6	33.1	-2.5	241.8	24.5	246.5	55.6E	
AUG 14	12 58 12.3	-4-57-55.8	5.98627	5.45295	21.617	-1.6	32.9	-2.5	182.4	24.4	246.7	54.0E	
AUG 16	12 59 25.8	-5 5-55.1	6.01098	5.45283	21.157	-1.6	32.8	-2.5	123.0	24.4	246.8	52.4E	
AUG 18	13 0 40.6	-5-14 1.6	6.03514	5.45271	20.684	-1.6	32.7	-2.5	63.6	24.3	247.0	50.8E	
AUG 20	13 1 56.8	-5-22-14.6	6.05876	5.45259	20.200	-1.6	32.5	-2.5	4.3	24.3	247.1	49.3E	
AUG 22	13 3 14.2	-5-30-33.9	6.08180	5.45247	19.703	-1.6	32.4	-2.5	304.9	24.2	247.3	47.7E	
AUG 24	13 4 32.8	-5-38-59.2	6.10427	5.45234	19.193	-1.6	32.3	-2.5	245.5	24.2	247.4	46.1E	
AUG 26	13 5 52.7	-5-47-30.6	6.12614	5.45221	18.669	-1.6	32.2	-2.5	186.1	24.1	247.6	44.5E	
AUG 28	13 7 13.8	-5-56 7.6	6.14739	5.45208	18.129	-1.6	32.1	-2.5	126.7	24.1	247.7	43.0E	
AUG 30	13 8 36.0	-6 4-49.9	6.16802	5.45195	17.575	-1.6	32.0	-2.6	67.3	24.0	247.9	41.4E	
SEP 1	13 9 59.3	-6-13-37.3	6.18799	5.45181	17.006	-1.6	31.9	-2.6	7.9	24.0	248.0	39.9E	
SEP 3	13 11 23.7	-6-22-29.4	6.20730	5.45168	16.423	-1.6	31.8	-2.6	308.5	23.9	248.2	38.3E	
SEP 5	13 12 49.1	-6-31-25.8	6.22593	5.45154	15.827	-1.6	31.7	-2.6	249.1	23.9	248.3	36.8E	
SEP 7	13 14 15.5	-6-40-26.2	6.24386	5.45140	15.219	-1.6	31.6	-2.6	189.6	23.8	248.5	35.2E	
SEP 9	13 15 42.9	-6-49-30.5	6.26108	5.45126	14.600	-1.6	31.5	-2.6	130.2	23.8	248.6	33.6E	
SEP 11	13 17 11.2	-6-58-38.2	6.27759	5.45111	13.971	-1.6	31.4	-2.6	70.8	23.7	248.8	32.1E	
SEP 13	13 18 40.3	-7 7-49.1	6.29336	5.45097	13.334	-1.5	31.3	-2.6	11.4	23.6	248.9	30.6E	
SEP 15	13 20 10.3	-7-17 2.8	6.30839	5.45082	12.690	-1.5	31.3	-2.6	312.0	23.6	249.1	29.0E	
SEP 17	13 21 41.1	-7-26-19.0	6.32267	5.45067	12.040	-1.5	31.2	-2.6	252.6	23.5	249.3	27.5E	
SEP 19	13 23 12.6	-7-35-37.3	6.33620	5.45052	11.383	-1.5	31.1	-2.6	193.2	23.4	249.4	25.9E	
SEP 21	13 24 44.8	-7-44-57.6	6.34897	5.45037	10.719	-1.5	31.1	-2.6	133.8	23.4	249.6	24.4E	
SEP 23	13 26 17.8	-7-54-19.8	6.36097	5.45021	10.045	-1.5	31.0	-2.6	74.4	23.3	249.7	22.8E	
SEP 25	13 27 51.4	-8 3-43.6	6.37218	5.45006	9.362	-1.5	30.9	-2.7	15.0	23.2	249.9	21.3E	
SEP 27	13 29 25.7	-8-13 8.7	6.38259	5.44990	8.670	-1.5	30.9	-2.7	315.6	23.1	250.0	19.8E	
SEP 29	13 31 0.6	-8-22-34.8	6.39220	5.44974	7.969	-1.5	30.8	-2.7	256.2	23.1	250.2	18.2E	
OCT 1	13 32 36.1	-8-32 1.6	6.40100	5.44957	7.260	-1.5	30.8	-2.7	196.8	23.0	250.3	16.7E	
OCT 3	13 34 12.1	-8-41-28.8	6.40898	5.44941	6.544	-1.5	30.8	-2.7	137.4	22.9	250.5	15.2E	
OCT 5	13 35 48.5	-8-50-56.1	6.41612	5.44924	5.821	-1.5	30.7	-2.7	78.0	22.8	250.6	13.6E	
OCT 7	13 37 25.5	-9 0-23.3	6.42242	5.44907	5.093	-1.5	30.7	-2.7	18.6	22.7	250.8	12.1E	
OCT 9	13 39 2.8	-9 9-50.2	6.42789	5.44890	4.362	-1.5	30.7	-2.7	319.2	22.7	250.9	10.5E	
OCT 11	13 40 40.6	-9-19-16.3	6.43250	5.44873	3.629	-1.5	30.6	-2.7	259.9	22.6	251.1	9.0E	
OCT 13	13 42 18.7	-9-28-41.4	6.43627	5.44856	2.894	-1.5	30.6	-2.7	200.5	22.5	251.2	7.5E	
OCT 15	13 43 57.0	-9-38 5.2	6.43919	5.44838	2.159	-1.5	30.6	-2.7	141.1	22.4	251.4	5.9E	
OCT 17	13 45 35.6	-9-47-27.4	6.44126	5.44820	1.423	-1.5	30.6	-2.8	81.7	22.3	251.5	4.4E	
OCT 19	13 47 14.5	-9-56-47.8	6.44248	5.44802	0.686	-1.5	30.6	-2.8	22.4	22.2	251.7	2.9E	
OCT 21	13 48 53.6	-10 6 6.4	6.44285	5.44784	-0.055	-1.5	30.6	-2.8	323.0	22.1	251.8	1.6E	
OCT 23	13 50 32.9	-10-15-23.0	6.44235	5.44766	-0.799	-1.5	30.6	-2.8	263.6	22.0	252.0	1.1E	
OCT 25	13 52 12.3	-10-24-37.2	6.44100	5.44747	-1.546	-1.5	30.6	-2.8	204.3	21.9	252.1	2.2W	
OCT 27	13 53 51.7	-10-33-48.7	6.43878	5.44728	-2.295	-1.5	30.6	-2.8	144.9	21.8	252.3	3.6W	
OCT 29	13 55 31.3	-10-42-57.3	6.43570	5.44709	-3.046	-1.5	30.6	-2.8	85.6	21.7	252.4	5.1W	
OCT 31	13 57 10.9	-10-52 2.7	6.43175	5.44690	-3.798	-1.5	30.7	-2.8	26.2	21.6	252.6	6.7W	
NOV 2	13 58 50.4	-11 1 4.7	6.42693	5.44671	-4.550	-1.5	30.7	-2.8	326.9	21.5	252.7	8.2W	
NOV 4	14 0 29.9	-11-10 3.1	6.42124	5.44651	-5.300	-1.5	30.7	-2.8	267.6	21.4	252.9	9.8W	
NOV 6	14 2 9.3	-11-18-57.6	6.41469	5.44632	-6.047	-1.5	30.7	-2.9	208.2	21.3	253.0	11.4W	
NOV 8	14 3 48.5	-11-27-47.9	6.40727	5.44612	-6.789	-1.5	30.8	-2.9	148.9	21.2	253.2	12.9W	
NOV 10	14 5 27.5	-11-36-33.7	6.39901	5.44592	-7.525	-1.5	30.8	-2.9	89.6	21.1	253.3	14.5W	
NOV 12	14 7 6.3	-11-45-14.8	6.38989	5.44571	-8.255	-1.5	30.9	-2.9	30.3	21.0	253.5	16.1W	
NOV 14	14 8 44.8	-11-53-50.9	6.37994	5.44551	-8.979	-1.5	30.9	-2.9	331.0	20.9	253.6	17.7W	
NOV 16	14 10 22.9	-12 2-21.9	6.36916	5.44530	-9.698	-1.5	31.0	-2.9	271.7	20.8	253.8	19.2W	
NOV 18	14 12 0.8	-12-10-47.9	6.35754	5.44510	-10.413	-1.5	31.0	-2.9	212.4	20.7	253.9	20.8W	
NOV 20	14 13 38.2	-12-19 8.4	6.34510	5.44489	-11.125	-1.5	31.1	-2.9	153.1	20.6	254.1	22.4W	
NOV 22	14 15 15.2	-12-27-23.3	6.33184	5.44467	-11.831	-1.5	31.1	-2.9	93.8	20.5	254.2	24.0W	
NOV 24	14 16 51.7	-12-35-32.4	6.31777	5.44446	-12.533	-1.5	31.2	-2.9	34.5	20.4	254.4	25.6W	
NOV 26	14 18 27.7	-12-43-35.3	6.30289	5.44424	-13.229	-1.5	31.3	-2.9	335.3	20.3	254.6	27.2W	
NOV 28	14 20 3.0	-12-51-31.8	6.28722	5.44403	-13.919	-1.6	31.4	-3.0	276.0	20.2	254.7	28.9W	
NOV 30	14 21 37.8	-12-59-21.8	6.27074	5.44381	-14.601	-1.6	31.4	-3.0	216.8	20.0	254.9	30.5W	
DEC 2	14 23 11.9	-13 7 5.1	6.25349	5.44359	-15.273	-1.6	31.5	-3.0	157.5	19.9	255.0	32.1W	
DEC 4	14 24 45.2	-13-14-41.5	6.23547	5.44336	-15.934	-1.6	31.6	-3.0	98.3	19.8	255.2	33.7W	
DEC 6	14 26 17.8	-13-22-10.7	6.21669	5.44314	-16.582	-1.6	31.7	-3.0	39.1	19.7	255.3	35.4W	
DEC 8	14 27 49.5	-13-29-32.4	6.19716	5.44291	-17.217	-1.6	31.8	-3.0	339.8	19.6	255.5	37.0W	
DEC 10	14 29 20.3	-13-36-46.4	6.17692	5.44268	-17.837	-1.6	31.9	-3.0	280.6	19.5	255.6	38.7W	
DEC 12	14 30 50.1	-13-43-52.6	6.15597	5.44245	-18.444	-1.6	32.0	-3.0	221.4	19.4	255.8	40.3W	
DEC 14	14 32 18.9	-13-50-50.9	6.13432	5.44222	-19.038	-1.6	32.1	-3.0	162.2	19.3	255.9	42.0W	
DEC 16	14 33 46.8	-13-57-41.3	6.11199	5.44199	-19.620	-1.6	32.3	-3.0	103.0	19.2	256.1	43.6W	
DEC 18	14 35 13.5	-14 4-23.5	6.08900	5.44175	-20.189	-1.6	32.4	-3.1	43.9	19.1			

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	14 44 45.2	-14-47-14.1	5.91074	5.44005	-23.773	-1.7	33.4	-3.1	349.8	18.3	257.3	57.1W	
JAN 3	14 46 1.1	-14-52-44.3	5.88303	5.43979	-24.212	-1.7	33.5	-3.1	290.7	18.2	257.4	58.8W	
JAN 5	14 47 15.4	-14-58 -4.5	5.85482	5.43954	-24.628	-1.7	33.7	-3.1	231.6	18.1	257.6	60.6W	
JAN 7	14 48 27.9	-15 -3-14.8	5.82614	5.43929	-25.021	-1.7	33.8	-3.1	172.5	18.1	257.7	62.3W	
JAN 9	14 49 38.8	-15 -8-15.0	5.79702	5.43903	-25.393	-1.7	34.0	-3.2	113.5	18.0	257.9	64.0W	
JAN 11	14 50 47.8	-15-13 -5.2	5.76749	5.43877	-25.744	-1.7	34.2	-3.2	54.4	17.9	258.0	65.8W	
JAN 13	14 51 55.0	-15-17-45.2	5.73756	5.43851	-26.074	-1.7	34.4	-3.2	355.3	17.8	258.2	67.6W	
JAN 15	14 53 0.2	-15-22-14.8	5.70726	5.43825	-26.383	-1.7	34.5	-3.2	296.3	17.7	258.3	69.3W	
JAN 17	14 54 3.5	-15-26-34.1	5.67662	5.43799	-26.671	-1.8	34.7	-3.2	237.2	17.6	258.5	71.1W	
JAN 19	14 55 4.7	-15-30-42.6	5.64566	5.43772	-26.938	-1.8	34.9	-3.2	178.2	17.5	258.6	72.9W	
JAN 21	14 56 3.9	-15-34-40.4	5.61440	5.43745	-27.181	-1.8	35.1	-3.2	119.2	17.4	258.8	74.7W	
JAN 23	14 57 0.9	-15-38-27.3	5.58287	5.43719	-27.401	-1.8	35.3	-3.2	60.2	17.4	259.0	76.5W	
JAN 25	14 57 55.7	-15-42 -3.2	5.55110	5.43691	-27.596	-1.8	35.5	-3.2	1.2	17.3	259.1	78.3W	
JAN 27	14 58 48.2	-15-45-28.0	5.51913	5.43664	-27.765	-1.8	35.7	-3.2	302.2	17.2	259.3	80.1W	
JAN 29	14 59 38.3	-15-48-41.6	5.48697	5.43637	-27.905	-1.8	35.9	-3.2	243.2	17.2	259.4	81.9W	
JAN 31	15 0 26.1	-15-51-43.8	5.45467	5.43609	-28.015	-1.8	36.1	-3.2	184.3	17.1	259.6	83.7W	
FEB 2	15 1 11.3	-15-54-34.4	5.42227	5.43581	-28.094	-1.9	36.4	-3.3	125.3	17.0	259.7	85.6W	
FEB 4	15 1 54.0	-15-57-13.3	5.38978	5.43553	-28.143	-1.9	36.6	-3.3	66.4	17.0	259.9	87.4W	
FEB 6	15 2 34.2	-15-59-40.5	5.35726	5.43525	-28.163	-1.9	36.8	-3.3	7.4	16.9	260.0	89.3W	
FEB 8	15 3 11.8	-16 -1-56.3	5.32473	5.43497	-28.154	-1.9	37.0	-3.3	308.5	16.9	260.2	91.2W	
FEB 10	15 3 46.7	-16 -4 -0.3	5.29223	5.43468	-28.117	-1.9	37.3	-3.3	249.6	16.8	260.3	93.0W	
FEB 12	15 4 18.8	-16 -5-52.6	5.25979	5.43439	-28.052	-1.9	37.5	-3.3	190.7	16.8	260.5	94.9W	
FEB 14	15 4 48.3	-16 -7-33.1	5.22744	5.43410	-27.958	-1.9	37.7	-3.3	131.8	16.7	260.6	96.8W	
FEB 16	15 5 14.9	-16 -9 -1.5	5.19521	5.43381	-27.836	-1.9	37.9	-3.3	73.0	16.7	260.8	98.7W	
FEB 18	15 5 38.7	-16-10-18.0	5.16314	5.43352	-27.684	-2.0	38.2	-3.3	14.1	16.7	260.9	100.7W	
FEB 20	15 5 59.7	-16-11-22.3	5.13126	5.43323	-27.502	-2.0	38.4	-3.3	315.2	16.6	261.1	102.6W	
FEB 22	15 6 17.7	-16-12-14.6	5.09962	5.43293	-27.289	-2.0	38.7	-3.3	256.4	16.6	261.2	104.5W	
FEB 24	15 6 32.8	-16-12-54.9	5.06823	5.43263	-27.043	-2.0	38.9	-3.3	197.6	16.6	261.4	106.5W	
FEB 26	15 6 44.9	-16-13-22.9	5.03716	5.43233	-26.763	-2.0	39.1	-3.3	138.7	16.6	261.5	108.4W	
FEB 28	15 6 54.0	-16-13-38.6	5.00642	5.43203	-26.447	-2.0	39.4	-3.3	79.9	16.6	261.7	110.4W	
MAR 2	15 7 0.1	-16-13-41.9	4.97607	5.43173	-26.095	-2.0	39.6	-3.4	21.1	16.5	261.8	112.4W	
MAR 4	15 7 3.1	-16-13-32.9	4.94615	5.43142	-25.709	-2.1	39.9	-3.4	322.4	16.5	262.0	114.4W	
MAR 6	15 7 3.1	-16-13-11.9	4.91669	5.43111	-25.291	-2.1	40.1	-3.4	263.6	16.5	262.1	116.4W	
MAR 8	15 7 0.1	-16-12-38.9	4.88773	5.43080	-24.841	-2.1	40.3	-3.4	204.8	16.5	262.3	118.4W	
MAR 10	15 6 54.1	-16-11-54.0	4.85931	5.43049	-24.360	-2.1	40.6	-3.4	146.0	16.6	262.5	120.4W	
MAR 12	15 6 45.1	-16-10-57.1	4.83147	5.43018	-23.849	-2.1	40.8	-3.4	87.3	16.6	262.6	122.5W	
MAR 14	15 6 33.0	-16 -9-48.5	4.80423	5.42987	-23.308	-2.1	41.0	-3.4	28.6	16.6	262.8	124.5W	
MAR 16	15 6 18.1	-16 -8-28.0	4.77763	5.42955	-22.738	-2.1	41.3	-3.4	329.8	16.6	262.9	126.6W	
MAR 18	15 6 0.2	-16 -6-55.9	4.75171	5.42923	-22.137	-2.2	41.5	-3.4	271.1	16.6	263.1	128.6W	
MAR 20	15 5 39.4	-16 -5-12.3	4.72650	5.42891	-21.507	-2.2	41.7	-3.4	212.4	16.7	263.2	130.7W	
MAR 22	15 5 15.7	-16 -3-17.5	4.70203	5.42859	-20.846	-2.2	41.9	-3.4	153.7	16.7	263.4	132.8W	
MAR 24	15 4 49.3	-16 -1-11.5	4.67835	5.42827	-20.154	-2.2	42.1	-3.4	95.0	16.7	263.5	134.9W	
MAR 26	15 4 20.0	-15-58-54.6	4.65548	5.42794	-19.431	-2.2	42.3	-3.4	36.3	16.8	263.7	137.0W	
MAR 28	15 3 48.1	-15-56-26.8	4.63347	5.42761	-18.676	-2.2	42.5	-3.4	337.6	16.8	263.8	139.1W	
MAR 30	15 3 13.5	-15-53-48.4	4.61235	5.42729	-17.890	-2.2	42.7	-3.4	278.9	16.9	264.0	141.2W	
APR 1	15 2 36.4	-15-50-59.9	4.59215	5.42696	-17.077	-2.2	42.9	-3.4	220.3	16.9	264.1	143.4W	
APR 3	15 1 56.9	-15-48 -1.7	4.57290	5.42662	-16.238	-2.2	43.1	-3.4	161.6	17.0	264.3	145.5W	
APR 5	15 1 15.0	-15-44-54.3	4.55464	5.42629	-15.375	-2.3	43.3	-3.4	102.9	17.0	264.4	147.7W	
APR 7	15 0 31.0	-15-41-38.0	4.53739	5.42595	-14.492	-2.3	43.4	-3.4	44.3	17.1	264.6	149.8W	
APR 9	14 59 44.8	-15-38-13.2	4.52117	5.42562	-13.588	-2.3	43.6	-3.4	345.6	17.1	264.7	152.0W	
APR 11	14 58 56.6	-15-34-40.4	4.50600	5.42528	-12.666	-2.3	43.8	-3.4	287.0	17.2	264.9	154.1W	
APR 13	14 58 6.6	-15-30-59.9	4.49191	5.42494	-11.726	-2.3	43.9	-3.4	228.3	17.3	265.0	156.3W	
APR 15	14 57 14.9	-15-27-12.3	4.47892	5.42459	-10.769	-2.3	44.0	-3.4	169.7	17.4	265.2	158.5W	
APR 17	14 56 21.6	-15-23-18.2	4.46704	5.42425	-9.797	-2.3	44.1	-3.4	111.1	17.4	265.4	160.6W	
APR 19	14 55 26.9	-15-19-18.2	4.45629	5.42390	-8.809	-2.3	44.2	-3.4	52.4	17.5	265.5	162.8W	
APR 21	14 54 30.9	-15-15-12.7	4.44669	5.42355	-7.806	-2.3	44.3	-3.4	353.8	17.6	265.7	165.0W	
APR 23	14 53 33.6	-15-11 -2.4	4.43826	5.42320	-6.788	-2.3	44.4	-3.4	295.1	17.7	265.8	167.2W	
APR 25	14 52 35.4	-15 -6-47.9	4.43101	5.42285	-5.758	-2.3	44.5	-3.4	236.5	17.7	266.0	169.4W	
APR 27	14 51 36.4	-15 -2-29.7	4.42496	5.42250	-4.718	-2.3	44.6	-3.4	177.8	17.8	266.1	171.5W	
APR 29	14 50 36.6	-14-58 -8.8	4.42011	5.42214	-3.671	-2.3	44.6	-3.4	119.2	17.9	266.3	173.7W	
MAY 1	14 49 36.5	-14-53-46.1	4.41647	5.42179	-2.620	-2.4	44.6	-3.4	60.5	18.0	266.4	175.8W	
MAY 3	14 48 36.0	-14-49-22.4	4.41405	5.42143	-1.568	-2.4	44.7	-3.4	1.9	18.0	266.6	177.8W	
MAY 5	14 47 35.4	-14-44-58.2	4.41285	5.42107	-0.518	-2.4	44.7	-3.4	303.2	18.1	266.7	179.6W	
MAY 7	14 46 34.8	-14-40-34.3	4.41285	5.42071	0.528	-2.4	44.7	-3.4	244.5	18.2	266.9	177.1E	
MAY 9	14 45 34.4	-14-36-11.5	4.41406	5.42034	1.569	-2.4	44.7	-3.4	185.8	18.3	267.0	175.0E	
MAY 11	14 44 34.4	-14-31-50.4	4.41647	5.41998	2.604	-2.3	44.6	-3.3	127.1	18.4	267.2	172.9E	
MAY 13	14 43 34.9	-14-27-32.0	4.42007	5.41961	3.630	-2.3	44.6	-3.3	68.5	18.4	267.3	170.7E	
MAY 15	14 42 36.1	-14-23-16.8	4.42485	5.41924	4.649	-2.3	44.6	-3.3	9.7	18.5	267.5	168.6E	
MAY 17	14 41 38.2	-14-19 -5.8	4.43080	5.41887	5.658	-2.3	44.5	-3.3	311.0	18.6	267.6	166.4E	
MAY 19	14 40 41.3	-14-14-59.5	4.43792	5.41850	6.658	-2.3	44.4	-3.3	252.3	18.7	267.8	164.3E	
MAY 21	14 39 45.4	-14-10-58.5	4.44618	5.41812	7.647	-2.3	44.3	-3.3	193.6	18.7	268.0	162.1E	
MAY 23	14 38 50.8	-14 -7 -3.5	4.45558	5.41775	8.624	-2.3	44.2	-3.3	134.8	18.8	268.1	160.0E	
MAY 25	14 37 57.7	-14 -3-15.4	4.46609	5.41737	9.586	-2.3	44.1	-3.3	76.1	18.9	268.3	157.8E	
MAY 27	14 37 6.1	-13-59-34.9	4.47771	5.41699	10.530	-2.3	44.0	-3.3	17.3	18.9	268.4	155.7E	
MAY 29	14 36 16.3	-13-56 -2.8	4.49041	5.41661	11.453	-2.3	43.9	-3.3	318.5	19.0	268.6	153.5E	
MAY 31	14 35 28.3	-13-52-39.7	4.50416	5.41623	12.354	-2.3	43.8	-3.3	259.7	19.1	268.7	151.4E	
JUN 2	14 34 42.2	-13-49-26.1	4.51894	5.41585	13.230	-2.3	43.6	-3.2	200.9	19.1	268.9	149.3E	
JUN 4	14 33 58.1	-13-46-22.5	4.53471	5.41546	14.082	-2.3	43.5	-3.2	142.1	19.2	269.0	147.2E	
JUN 6	14 33 16.2	-13-43-29.4	4.55145	5.41507	14.907	-2.3	43.3	-3.2	83.3	19.2	269.2	145.1E	
JUN 8	14 32 36.6	-13-40-47.2	4.56914	5.41468	15.707	-2.3	43.1	-3.2	24.4	19.3	269.3	143.1E	
JUN 10	14 31 59.3	-13-38-16.5	4.58773	5.41429	16.480	-2.2	43.0	-3.2	325.5	19.3	269.5	141.0E	
JUN 12	14 31 24.4	-13-35-57.6	4.60720	5.41390	17.227	-2.2	42.8	-3.2	266.7	19.4	269.6	138.9E	
JUN 14	14 30 51.9	-13-33-50.9	4.62751	5.41351	17.949	-2.2	42.6	-3.2	207.8	19.4	269.8	136.9E	
JUN 16	14 30 21.9	-13-31-56.6	4.64865	5.41311	18.646	-2.2	42.4	-3.2	148.9	19.4	269.9	134.9E	
JUN 18	14 29 54.5	-13-30-14.9	4.67058	5.41271	19.318	-2.2	42.2	-3.2	89.9	19.5	270.1	132.8E	
JUN 20</													

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	14 27 58.6	-13-24-39.2	4.84348	5.40988	23.197	-2.1	40.7	-3.1	37.1	19.6	271.2	119.0E	
JUL 4	14 27 53.3	-13-24-46.5	4.87053	5.40947	23.625	-2.1	40.5	-3.1	338.0	19.6	271.3	117.1E	
JUL 6	14 27 50.7	-13-25 -7.8	4.89805	5.40906	24.021	-2.1	40.2	-3.1	278.9	19.6	271.5	115.2E	
JUL 8	14 27 51.0	-13-25-42.9	4.92601	5.40864	24.388	-2.1	40.0	-3.1	219.9	19.6	271.6	113.3E	
JUL 10	14 27 54.1	-13-26-31.8	4.95437	5.40823	24.726	-2.1	39.8	-3.1	160.8	19.6	271.8	111.4E	
JUL 12	14 27 60.0	-13-27-34.4	4.98312	5.40781	25.036	-2.0	39.6	-3.1	101.7	19.6	271.9	109.5E	
JUL 14	14 28 8.7	-13-28-50.4	5.01220	5.40739	25.320	-2.0	39.3	-3.0	42.6	19.6	272.1	107.6E	
JUL 16	14 28 20.1	-13-30-19.6	5.04160	5.40697	25.577	-2.0	39.1	-3.0	343.4	19.6	272.2	105.8E	
JUL 18	14 28 34.2	-13-32 -2.0	5.07128	5.40655	25.808	-2.0	38.9	-3.0	284.3	19.6	272.4	103.9E	
JUL 20	14 28 51.1	-13-33-57.5	5.10121	5.40612	26.010	-2.0	38.6	-3.0	225.2	19.5	272.6	102.1E	
JUL 22	14 29 10.8	-13-36 -6.1	5.13136	5.40570	26.183	-2.0	38.4	-3.0	166.0	19.5	272.7	100.3E	
JUL 24	14 29 33.1	-13-38-27.5	5.16168	5.40527	26.327	-2.0	38.2	-3.0	106.8	19.5	272.9	98.5E	
JUL 26	14 29 58.1	-13-41 -1.4	5.19216	5.40484	26.440	-2.0	38.0	-3.0	47.6	19.5	273.0	96.7E	
JUL 28	14 30 25.7	-13-43-47.7	5.22275	5.40441	26.524	-1.9	37.7	-3.0	348.4	19.4	273.2	94.9E	
JUL 30	14 30 55.9	-13-46-45.9	5.25343	5.40398	26.579	-1.9	37.5	-3.0	289.2	19.4	273.3	93.1E	
AUG 1	14 31 28.7	-13-49-55.8	5.28415	5.40355	26.607	-1.9	37.3	-3.0	230.0	19.3	273.5	91.3E	
AUG 3	14 32 4.0	-13-53-17.1	5.31488	5.40311	26.607	-1.9	37.1	-3.0	170.7	19.3	273.6	89.6E	
AUG 5	14 32 41.9	-13-56-49.7	5.34561	5.40268	26.582	-1.9	36.9	-3.0	111.5	19.3	273.8	87.8E	
AUG 7	14 33 22.1	-14 0-33.1	5.37628	5.40224	26.534	-1.9	36.7	-3.0	52.2	19.2	273.9	86.1E	
AUG 9	14 34 4.8	-14 4-27.0	5.40689	5.40180	26.462	-1.9	36.5	-3.0	353.0	19.2	274.1	84.3E	
AUG 11	14 34 49.8	-14 -8-31.0	5.43741	5.40135	26.370	-1.9	36.3	-3.0	293.7	19.1	274.2	82.6E	
AUG 13	14 35 37.1	-14-12-44.8	5.46781	5.40091	26.256	-1.8	36.1	-3.0	234.4	19.0	274.4	80.9E	
AUG 15	14 36 26.6	-14-17 -8.1	5.49806	5.40047	26.121	-1.8	35.9	-2.9	175.1	19.0	274.6	79.2E	
AUG 17	14 37 18.5	-14-21-40.7	5.52814	5.40002	25.962	-1.8	35.7	-2.9	115.8	18.9	274.7	77.5E	
AUG 19	14 38 12.5	-14-26-22.5	5.55803	5.39957	25.779	-1.8	35.5	-2.9	56.5	18.8	274.9	75.8E	
AUG 21	14 39 8.7	-14-31-13.0	5.58769	5.39912	25.572	-1.8	35.3	-2.9	357.2	18.8	275.0	74.1E	
AUG 23	14 40 7.0	-14-36-11.9	5.61709	5.39867	25.342	-1.8	35.1	-2.9	297.9	18.7	275.2	72.4E	
AUG 25	14 41 7.4	-14-41-18.8	5.64622	5.39822	25.088	-1.8	34.9	-2.9	238.5	18.6	275.3	70.8E	
AUG 27	14 42 9.9	-14-46-33.3	5.67504	5.39776	24.811	-1.8	34.7	-2.9	179.2	18.5	275.5	69.1E	
AUG 29	14 43 14.3	-14-51-55.0	5.70353	5.39731	24.514	-1.8	34.6	-2.9	119.8	18.5	275.6	67.4E	
AUG 31	14 44 20.7	-14-57-23.8	5.73167	5.39685	24.195	-1.7	34.4	-2.9	60.5	18.4	275.8	65.8E	
SEP 2	14 45 29.0	-15 -2-59.2	5.75942	5.39639	23.858	-1.7	34.2	-2.9	1.1	18.3	275.9	64.1E	
SEP 4	14 46 39.1	-15 -8-41.0	5.78678	5.39593	23.502	-1.7	34.1	-2.9	301.8	18.2	276.1	62.5E	
SEP 6	14 47 51.1	-15-14-28.6	5.81371	5.39547	23.131	-1.7	33.9	-2.9	242.4	18.1	276.3	60.9E	
SEP 8	14 49 4.8	-15-20-21.7	5.84021	5.39501	22.744	-1.7	33.8	-2.9	183.0	18.0	276.4	59.3E	
SEP 10	14 50 20.1	-15-26-19.9	5.86625	5.39454	22.343	-1.7	33.6	-2.9	123.6	17.9	276.6	57.6E	
SEP 12	14 51 37.2	-15-32-23.1	5.89182	5.39407	21.925	-1.7	33.5	-2.9	64.3	17.8	276.7	56.0E	
SEP 14	14 52 56.0	-15-38-31.0	5.91690	5.39361	21.490	-1.7	33.3	-2.9	4.9	17.7	276.9	54.4E	
SEP 16	14 54 16.3	-15-44-43.3	5.94146	5.39314	21.038	-1.7	33.2	-2.9	305.5	17.6	277.0	52.8E	
SEP 18	14 55 38.2	-15-50-59.7	5.96549	5.39267	20.567	-1.7	33.0	-2.9	246.1	17.5	277.2	51.2E	
SEP 20	14 57 1.7	-15-57-19.8	5.98897	5.39219	20.078	-1.7	32.9	-2.9	186.7	17.4	277.3	49.6E	
SEP 22	14 58 26.6	-16 -3-43.3	6.01187	5.39172	19.573	-1.7	32.8	-2.9	127.3	17.2	277.5	48.0E	
SEP 24	14 59 52.9	-16-10 -9.7	6.03418	5.39124	19.051	-1.6	32.7	-2.9	67.9	17.1	277.6	46.4E	
SEP 26	15 1 20.7	-16-16-38.9	6.05588	5.39076	18.513	-1.6	32.6	-2.9	8.5	17.0	277.8	44.8E	
SEP 28	15 2 49.8	-16-23-10.5	6.07695	5.39029	17.962	-1.6	32.4	-2.9	309.1	16.9	278.0	43.2E	
SEP 30	15 4 20.3	-16-29-44.2	6.09737	5.38981	17.397	-1.6	32.3	-2.9	249.7	16.8	278.1	41.6E	
OCT 2	15 5 52.0	-16-36-19.8	6.11714	5.38932	16.821	-1.6	32.2	-2.9	190.3	16.6	278.3	40.0E	
OCT 4	15 7 24.9	-16-42-56.8	6.13623	5.38884	16.235	-1.6	32.1	-2.9	130.8	16.5	278.4	38.5E	
OCT 6	15 8 59.0	-16-49-34.8	6.15464	5.38835	15.639	-1.6	32.0	-2.9	71.4	16.4	278.6	36.9E	
OCT 8	15 10 34.2	-16-56-13.5	6.17236	5.38787	15.035	-1.6	31.9	-2.9	12.0	16.2	278.7	35.3E	
OCT 10	15 12 10.6	-17 -2-53.0	6.18937	5.38738	14.420	-1.6	31.9	-2.9	312.6	16.1	278.9	33.7E	
OCT 12	15 13 48.0	-17 -9-32.8	6.20567	5.38689	13.794	-1.6	31.8	-2.9	253.2	16.0	279.0	32.2E	
OCT 14	15 15 26.5	-17-16-12.9	6.22124	5.38640	13.156	-1.6	31.7	-2.9	193.8	15.8	279.2	30.6E	
OCT 16	15 17 5.9	-17-22-52.8	6.23606	5.38591	12.506	-1.6	31.6	-2.9	134.4	15.7	279.3	29.0E	
OCT 18	15 18 46.3	-17-29-32.3	6.25012	5.38541	11.844	-1.6	31.5	-2.9	75.0	15.5	279.5	27.4E	
OCT 20	15 20 27.6	-17-36-11.0	6.26342	5.38492	11.171	-1.6	31.5	-2.9	15.5	15.4	279.7	25.9E	
OCT 22	15 22 9.8	-17-42-48.7	6.27593	5.38442	10.488	-1.6	31.4	-2.9	316.1	15.2	279.8	24.3E	
OCT 24	15 23 52.8	-17-49-25.1	6.28764	5.38392	9.796	-1.6	31.4	-2.9	256.7	15.1	280.0	22.7E	
OCT 26	15 25 36.6	-17-56 0.0	6.29856	5.38342	9.095	-1.6	31.3	-2.9	197.3	14.9	280.1	21.2E	
OCT 28	15 27 21.2	-18 -2-33.3	6.30866	5.38292	8.388	-1.6	31.3	-2.9	137.9	14.8	280.3	19.6E	
OCT 30	15 29 6.5	-18 -9 -4.5	6.31794	5.38242	7.676	-1.6	31.2	-2.9	78.5	14.6	280.4	18.0E	
NOV 1	15 30 52.4	-18-15-33.4	6.32639	5.38191	6.961	-1.6	31.2	-2.9	19.1	14.4	280.6	16.5E	
NOV 3	15 32 38.9	-18-21-59.7	6.33402	5.38141	6.242	-1.6	31.1	-2.9	319.7	14.3	280.7	14.9E	
NOV 5	15 34 26.0	-18-28-23.2	6.34081	5.38090	5.520	-1.6	31.1	-2.9	260.3	14.1	280.9	13.3E	
NOV 7	15 36 13.6	-18-34-43.8	6.34677	5.38039	4.794	-1.6	31.1	-2.9	200.9	14.0	281.0	11.8E	
NOV 9	15 38 1.7	-18-41 -1.4	6.35189	5.37988	4.063	-1.6	31.0	-2.9	141.5	13.8	281.2	10.2E	
NOV 11	15 39 50.3	-18-47-15.8	6.35615	5.37937	3.326	-1.6	31.0	-2.9	82.1	13.6	281.4	8.7E	
NOV 13	15 41 39.3	-18-53-26.8	6.35957	5.37886	2.584	-1.6	31.0	-2.9	22.7	13.4	281.5	7.1E	
NOV 15	15 43 28.7	-18-59-34.0	6.36212	5.37834	1.837	-1.6	31.0	-2.9	323.3	13.3	281.7	5.5E	
NOV 17	15 45 18.4	-19 -5-37.2	6.36381	5.37783	1.085	-1.6	31.0	-2.9	264.0	13.1	281.8	4.0E	
NOV 19	15 47 8.4	-19-11-36.3	6.36463	5.37731	0.330	-1.6	31.0	-2.9	204.6	12.9	282.0	2.4E	
NOV 21	15 48 58.7	-19-17-31.2	6.36458	5.37679	-0.428	-1.6	31.0	-2.9	145.2	12.8	282.1	1.1E	
NOV 23	15 50 49.1	-19-23-21.6	6.36365	5.37627	-1.186	-1.6	31.0	-2.9	85.8	12.6	282.3	1.1W	
NOV 25	15 52 39.7	-19-29 -7.5	6.36184	5.37575	-1.945	-1.6	31.0	-2.9	26.5	12.4	282.4	2.5W	
NOV 27	15 54 30.4	-19-34-48.6	6.35916	5.37522	-2.701	-1.6	31.0	-2.9	327.1	12.2	282.6	4.0W	
NOV 29	15 56 21.2	-19-40-24.7	6.35560	5.37470	-3.454	-1.6	31.0	-2.9	267.8	12.1	282.8	5.6W	
DEC 1	15 58 11.9	-19-45-55.5	6.35118	5.37417	-4.203	-1.6	31.0	-2.9	208.4	11.9	282.9	7.2W	
DEC 3	16 0 2.5	-19-51-21.1	6.34589	5.37365	-4.949	-1.6	31.1	-2.9	149.1	11.7	283.1	8.7W	
DEC 5	16 1 53.2	-19-56-41.3	6.33975	5.37312	-5.691	-1.6	31.1	-2.9	89.7	11.5	283.2	10.3W	
DEC 7	16 3 43.7	-20 -1-56.2	6.33275	5.37259	-6.432	-1.6	31.1	-2.9	30.4	11.3	283.4	11.9W	
DEC 9	16 5 34.0	-20 -7 -5.7	6.32489	5.37206	-7.171	-1.6	31.2	-2.9	331.1	11.2	283.5	13.5W	
DEC 11	16 7 24.0	-20-12 -9.5	6.31619	5.37152	-7.908	-1.6	31.2	-2.9	271.7	11.0	283.7	15.1W	
DEC 13	16 9 13.9	-20-17 -7.4	6.30663	5.37099	-8.643	-1.6	31.3	-2.9	212.4	10.8	283.8	16.7W	
DEC 15	16 11 3.4	-20-21-59.5	6.29622	5.37045	-9.375	-1.6	31.3	-2.9	153.1	10.6	284.0	18.3W	
DEC 17	16 12 52.5	-20-26-45.5	6.28497	5.36992	-10.103	-1.6	31.4	-2.9	93.8	10.4	284.2	19.9W	
DEC 19	16 14 41.2	-20-31-25.5	6.27289	5									

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	22 41 19.8	-10-14-18.1	10.16794	9.68158	24.348	1.2	16.3	7.0	85.6	5.6	169.3	57.9E
JAN 3	22 41 57.6	-10-10-19.6	10.19576	9.68102	23.832	1.2	16.3	6.9	266.9	5.6	169.4	56.0E
JAN 5	22 42 36.5	-10 -6-14.9	10.22298	9.68047	23.290	1.2	16.3	6.8	88.2	5.6	169.5	54.2E
JAN 7	22 43 16.4	-10 -2 -4.2	10.24956	9.67992	22.725	1.2	16.2	6.7	269.5	5.6	169.5	52.3E
JAN 9	22 43 57.4	-9-57-47.6	10.27548	9.67936	22.139	1.2	16.2	6.7	90.9	5.6	169.6	50.5E
JAN 11	22 44 39.3	-9-53-25.2	10.30070	9.67881	21.532	1.2	16.1	6.6	272.2	5.6	169.7	48.6E
JAN 13	22 45 22.1	-9-48-57.4	10.32521	9.67825	20.906	1.2	16.1	6.5	93.5	5.6	169.7	46.8E
JAN 15	22 46 5.9	-9-44-24.3	10.34899	9.67769	20.263	1.2	16.1	6.4	274.8	5.6	169.8	44.9E
JAN 17	22 46 50.5	-9-39-46.1	10.37202	9.67714	19.601	1.2	16.0	6.3	96.1	5.6	169.9	43.1E
JAN 19	22 47 35.9	-9-35 -3.1	10.39427	9.67658	18.923	1.2	16.0	6.2	277.4	5.5	169.9	41.3E
JAN 21	22 48 22.2	-9-30-15.5	10.41573	9.67603	18.228	1.2	16.0	6.1	98.7	5.5	170.0	39.4E
JAN 23	22 49 9.2	-9-25-23.3	10.43638	9.67547	17.515	1.2	15.9	6.0	280.0	5.5	170.1	37.6E
JAN 25	22 49 56.9	-9-20-26.7	10.45619	9.67491	16.785	1.2	15.9	5.9	101.3	5.5	170.1	35.8E
JAN 27	22 50 45.4	-9-15-25.9	10.47515	9.67436	16.037	1.2	15.9	5.8	282.6	5.5	170.2	34.0E
JAN 29	22 51 34.5	-9-10-21.2	10.49323	9.67380	15.272	1.2	15.8	5.7	103.9	5.5	170.3	32.2E
JAN 31	22 52 24.2	-9 -5-12.8	10.51043	9.67324	14.490	1.2	15.8	5.6	285.2	5.5	170.3	30.4E
FEB 2	22 53 14.6	-9 0 -1.1	10.52671	9.67269	13.694	1.2	15.8	5.5	106.5	5.5	170.4	28.6E
FEB 4	22 54 5.4	-8-54-46.1	10.54206	9.67213	12.887	1.2	15.8	5.4	287.8	5.4	170.5	26.8E
FEB 6	22 54 56.8	-8-49-28.2	10.55647	9.67157	12.069	1.2	15.7	5.3	109.2	5.4	170.5	25.0E
FEB 8	22 55 48.7	-8-44 -7.3	10.56994	9.67101	11.243	1.2	15.7	5.1	290.5	5.4	170.6	23.2E
FEB 10	22 56 41.0	-8-38-43.9	10.58245	9.67046	10.409	1.2	15.7	5.0	111.8	5.4	170.6	21.4E
FEB 12	22 57 33.7	-8-33-18.2	10.59399	9.66990	9.569	1.2	15.7	4.9	293.1	5.4	170.7	19.6E
FEB 14	22 58 26.8	-8-27-50.3	10.60455	9.66934	8.722	1.2	15.7	4.8	114.5	5.4	170.8	17.8E
FEB 16	22 59 20.2	-8-22-20.6	10.61414	9.66878	7.871	1.2	15.7	4.7	295.8	5.4	170.8	16.1E
FEB 18	23 0 14.0	-8-16-49.1	10.62274	9.66822	7.014	1.2	15.6	4.6	117.1	5.3	170.9	14.3E
FEB 20	23 1 7.9	-8-11-16.1	10.63034	9.66766	6.151	1.2	15.6	4.5	298.5	5.3	171.0	12.5E
FEB 22	23 2 2.2	-8 -5-41.6	10.63694	9.66710	5.281	1.2	15.6	4.4	119.8	5.3	171.0	10.8E
FEB 24	23 2 56.6	-8 0 -6.0	10.64254	9.66654	4.405	1.2	15.6	4.3	301.2	5.3	171.1	9.0E
FEB 26	23 3 51.3	-7-54-29.4	10.64712	9.66598	3.524	1.2	15.6	4.1	122.5	5.3	171.2	7.3E
FEB 28	23 4 46.0	-7-48-52.3	10.65068	9.66542	2.638	1.2	15.6	4.0	303.9	5.3	171.2	5.6E
MAR 2	23 5 40.9	-7-43-14.7	10.65322	9.66486	1.750	1.2	15.6	3.9	125.2	5.2	171.3	4.0E
MAR 4	23 6 35.8	-7-37-37.0	10.65473	9.66430	0.861	1.2	15.6	3.8	306.6	5.2	171.4	2.5E
MAR 6	23 7 30.7	-7-31-59.2	10.65521	9.66374	-0.026	1.2	15.6	3.7	127.9	5.2	171.4	1.8E
MAR 8	23 8 25.7	-7-26-21.7	10.65467	9.66318	-0.910	1.2	15.6	3.6	309.3	5.2	171.5	2.4W
MAR 10	23 9 20.6	-7-20-44.6	10.65311	9.66262	-1.790	1.2	15.6	3.5	130.7	5.2	171.6	3.9W
MAR 12	23 10 15.4	-7-15 -8.1	10.65054	9.66206	-2.665	1.3	15.6	3.3	312.1	5.2	171.6	5.5W
MAR 14	23 11 10.1	-7 -9-32.7	10.64696	9.66150	-3.536	1.3	15.6	3.2	133.5	5.1	171.7	7.2W
MAR 16	23 12 4.7	-7 -3-58.3	10.64238	9.66094	-4.400	1.3	15.6	3.1	314.9	5.1	171.8	8.9W
MAR 18	23 12 59.1	-6-58-25.3	10.63680	9.66038	-5.260	1.3	15.6	3.0	136.3	5.1	171.8	10.6W
MAR 20	23 13 53.3	-6-52-53.7	10.63023	9.65982	-6.115	1.3	15.6	2.9	317.7	5.1	171.9	12.3W
MAR 22	23 14 47.3	-6-47-23.7	10.62267	9.65926	-6.966	1.3	15.6	2.8	139.1	5.1	172.0	14.1W
MAR 24	23 15 41.1	-6-41-55.5	10.61414	9.65869	-7.813	1.3	15.7	2.7	320.5	5.1	172.0	15.8W
MAR 26	23 16 34.5	-6-36-29.5	10.60463	9.65813	-8.654	1.3	15.7	2.6	141.9	5.1	172.1	17.5W
MAR 28	23 17 27.6	-6-31 -6.0	10.59415	9.65757	-9.489	1.3	15.7	2.5	323.3	5.0	172.1	19.3W
MAR 30	23 18 20.4	-6-25-45.0	10.58271	9.65701	-10.316	1.4	15.7	2.3	144.8	5.0	172.2	21.0W
APR 1	23 19 12.8	-6-20-26.8	10.57033	9.65644	-11.132	1.4	15.7	2.2	326.2	5.0	172.3	22.7W
APR 3	23 20 4.7	-6-15-11.7	10.55700	9.65588	-11.937	1.4	15.7	2.1	147.6	5.0	172.3	24.5W
APR 5	23 20 56.2	-6 -9-59.7	10.54276	9.65532	-12.729	1.4	15.8	2.0	329.1	5.0	172.4	26.2W
APR 7	23 21 47.2	-6 -4-51.1	10.52760	9.65475	-13.507	1.4	15.8	1.9	150.5	5.0	172.5	27.9W
APR 9	23 22 37.7	-5-59-46.3	10.51156	9.65419	-14.270	1.4	15.8	1.8	332.0	4.9	172.5	29.7W
APR 11	23 23 27.6	-5-54-45.3	10.49465	9.65363	-15.018	1.4	15.8	1.7	153.5	4.9	172.6	31.4W
APR 13	23 24 17.0	-5-49-48.4	10.47687	9.65306	-15.752	1.4	15.9	1.6	334.9	4.9	172.7	33.1W
APR 15	23 25 5.7	-5-44-55.8	10.45826	9.65250	-16.471	1.4	15.9	1.5	156.4	4.9	172.7	34.9W
APR 17	23 25 53.8	-5-40 -7.5	10.43883	9.65194	-17.176	1.4	15.9	1.4	337.9	4.9	172.8	36.6W
APR 19	23 26 41.3	-5-35-23.8	10.41859	9.65137	-17.868	1.4	16.0	1.3	159.4	4.9	172.9	38.4W
APR 21	23 27 28.1	-5-30-44.8	10.39756	9.65081	-18.547	1.4	16.0	1.2	340.9	4.9	172.9	40.1W
APR 23	23 28 14.1	-5-26-10.9	10.37575	9.65024	-19.212	1.4	16.0	1.1	162.4	4.8	173.0	41.9W
APR 25	23 28 59.4	-5-21-42.3	10.35318	9.64968	-19.861	1.5	16.1	1.1	343.9	4.8	173.1	43.6W
APR 27	23 29 43.9	-5-17-19.1	10.32988	9.64911	-20.492	1.5	16.1	1.0	165.4	4.8	173.1	45.3W
APR 29	23 30 27.6	-5-13 -1.6	10.30585	9.64855	-21.104	1.5	16.1	0.9	347.0	4.8	173.2	47.1W
MAY 1	23 31 10.5	-5 -8-49.9	10.28113	9.64798	-21.696	1.5	16.2	0.8	168.5	4.8	173.3	48.8W
MAY 3	23 31 52.5	-5 -4-44.2	10.25574	9.64742	-22.266	1.5	16.2	0.7	350.0	4.8	173.3	50.6W
MAY 5	23 32 33.6	-5 0-44.8	10.22970	9.64685	-22.814	1.5	16.2	0.6	171.6	4.8	173.4	52.4W
MAY 7	23 33 13.7	-4-56-51.8	10.20305	9.64629	-23.339	1.5	16.3	0.6	353.1	4.7	173.5	54.1W
MAY 9	23 33 52.9	-4-53 -5.4	10.17580	9.64572	-23.841	1.5	16.3	0.5	174.7	4.7	173.5	55.9W
MAY 11	23 34 31.1	-4-49-25.8	10.14798	9.64515	-24.320	1.5	16.4	0.4	356.3	4.7	173.6	57.6W
MAY 13	23 35 8.3	-4-45-53.1	10.11962	9.64459	-24.777	1.5	16.4	0.3	177.8	4.7	173.7	59.4W
MAY 15	23 35 44.4	-4-42-27.4	10.09075	9.64402	-25.212	1.5	16.5	0.3	359.4	4.7	173.7	61.2W
MAY 17	23 36 19.6	-4-39 -8.8	10.06139	9.64345	-25.628	1.5	16.5	0.2	181.0	4.7	173.8	62.9W
MAY 19	23 36 53.6	-4-35-57.7	10.03155	9.64289	-26.022	1.5	16.6	0.1	2.6	4.7	173.8	64.7W
MAY 21	23 37 26.5	-4-32-54.1	10.00128	9.64232	-26.395	1.5	16.6	0.1	184.2	4.7	173.9	66.5W
MAY 23	23 37 58.3	-4-29-58.4	9.97059	9.64175	-26.744	1.5	16.7	0.0	5.8	4.6	174.0	68.3W
MAY 25	23 38 28.9	-4-27-10.6	9.93951	9.64119	-27.068	1.5	16.7	0.0	187.4	4.6	174.0	70.1W
MAY 27	23 38 58.4	-4-24-30.8	9.90807	9.64062	-27.365	1.5	16.8	-0.1	9.0	4.6	174.1	71.8W
MAY 29	23 39 26.6	-4-21-59.2	9.87630	9.64005	-27.634	1.5	16.8	-0.2	190.6	4.6	174.2	73.6W
MAY 31	23 39 53.6	-4-19-36.0	9.84424	9.63948	-27.875	1.5	16.9	-0.2	12.3	4.6	174.2	75.4W
JUN 2	23 40 19.3	-4-17-21.2	9.81192	9.63891	-28.087	1.4	16.9	-0.2	193.9	4.6	174.3	77.2W
JUN 4	23 40 43.7	-4-15-15.2	9.77936	9.63835	-28.269	1.4	17.0	-0.3	15.5	4.6	174.4	79.1W
JUN 6	23 41 6.9	-4-13-17.9	9.74662	9.63778	-28.422	1.4	17.1	-0.3	197.2	4.6	174.4	80.9W
JUN 8	23 41 28.7	-4-11-29.5	9.71371	9.63721	-28.547	1.4	17.1	-0.4	18.8	4.6	174.5	82.7W
JUN 10	23 41 49.1	-4 -9-50.0	9.68068	9.63664	-28.643	1.4	17.2	-0.4	200.5	4.6	174.6	84.5W
JUN 12	23 42 8.2	-4 -8-19.5	9.64756	9.63607	-28.712	1.4	17.2	-0.4	22.2	4.6	174.6	86.3W
JUN 14	23 42 26.0	-4 -6-57.9	9.61436	9.63550	-28.755	1.4	17.3	-0.5	203.8	4.6	174.7	88.2W
JUN 16	23 42 42.4	-4 -5-45.6	9.58114	9.63493	-28.772	1.4	17.3	-0.5	25.5	4.6	174.8	90.0W
JUN 18	23 42 57.4	-4 -4-42.6	9.54791	9.63437	-28.761	1.4	17.4	-0.5	207.2	4.6	174.8	91.8W
JUN 20	23 43 10.9	-4 -3-49.0	9.51470	9.63380	-28.721	1.4	17.5	-0.5	28.9	4.5	174.9	93.7W
JUN 22	23 43 2											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 2	23 44 1.8	-4 -1 -47.0	9.31812	9.63038	-27.812	1.3	17.8	-0.6	39.1	4.5	175.3	104.9W	
JUL 4	23 44 5.1	-4 -2 -0.3	9.28615	9.62981	-27.546	1.3	17.9	-0.6	220.9	4.5	175.4	106.8W	
JUL 6	23 44 6.9	-4 -2 -23.1	9.25450	9.62924	-27.248	1.3	18.0	-0.6	42.6	4.5	175.4	108.7W	
JUL 8	23 44 7.3	-4 -2 -55.3	9.22321	9.62866	-26.920	1.3	18.0	-0.6	224.3	4.5	175.5	110.6W	
JUL 10	23 44 6.1	-4 -3 -36.8	9.19232	9.62809	-26.563	1.3	18.1	-0.6	46.1	4.5	175.6	112.5W	
JUL 12	23 44 3.6	-4 -4 -27.6	9.16185	9.62752	-26.178	1.3	18.1	-0.5	227.8	4.5	175.6	114.5W	
JUL 14	23 43 59.5	-4 -5 -27.8	9.13185	9.62695	-25.765	1.3	18.2	-0.5	49.5	4.5	175.7	116.4W	
JUL 16	23 43 54.0	-4 -6 -37.2	9.10234	9.62638	-25.324	1.2	18.3	-0.5	231.3	4.5	175.8	118.3W	
JUL 18	23 43 47.0	-4 -7 -55.7	9.07336	9.62581	-24.852	1.2	18.3	-0.5	53.0	4.5	175.8	120.3W	
JUL 20	23 43 38.6	-4 -9 -23.2	9.04494	9.62524	-24.349	1.2	18.4	-0.4	234.8	4.5	175.9	122.2W	
JUL 22	23 43 28.8	-4 -10 -59.6	9.01712	9.62467	-23.814	1.2	18.4	-0.4	56.5	4.5	175.9	124.2W	
JUL 24	23 43 17.6	-4 -12 -44.7	8.98994	9.62409	-23.247	1.2	18.5	-0.4	238.3	4.5	176.0	126.1W	
JUL 26	23 43 4.9	-4 -14 -38.3	8.96342	9.62352	-22.649	1.2	18.5	-0.3	60.1	4.5	176.1	128.1W	
JUL 28	23 42 50.9	-4 -16 -40.4	8.93762	9.62295	-22.020	1.2	18.6	-0.3	241.8	4.6	176.1	130.1W	
JUL 30	23 42 35.5	-4 -18 -50.6	8.91256	9.62238	-21.361	1.2	18.6	-0.3	63.6	4.6	176.2	132.1W	
AUG 1	23 42 18.8	-4 -21 -8.8	8.88828	9.62180	-20.673	1.2	18.7	-0.2	245.4	4.6	176.3	134.0W	
AUG 3	23 42 0.8	-4 -23 -34.7	8.86481	9.62123	-19.958	1.2	18.7	-0.2	67.1	4.6	176.3	136.0W	
AUG 5	23 41 41.5	-4 -26 -7.9	8.84218	9.62066	-19.217	1.1	18.8	-0.1	248.9	4.6	176.4	138.0W	
AUG 7	23 41 21.1	-4 -28 -48.0	8.82042	9.62009	-18.452	1.1	18.8	-0.1	70.7	4.6	176.5	140.0W	
AUG 9	23 40 59.5	-4 -31 -35.0	8.79956	9.61951	-17.666	1.1	18.9	0.0	252.4	4.6	176.5	142.1W	
AUG 11	23 40 36.7	-4 -34 -28.6	8.77962	9.61894	-16.858	1.1	18.9	0.0	74.2	4.6	176.6	144.1W	
AUG 13	23 40 12.8	-4 -37 -28.4	8.76062	9.61837	-16.028	1.1	19.0	0.1	256.0	4.6	176.7	146.1W	
AUG 15	23 39 47.9	-4 -40 -34.2	8.74260	9.61779	-15.175	1.1	19.0	0.1	77.8	4.6	176.7	148.1W	
AUG 17	23 39 22.0	-4 -43 -45.4	8.72557	9.61722	-14.299	1.1	19.0	0.2	259.5	4.6	176.8	150.2W	
AUG 19	23 38 55.1	-4 -47 -1.9	8.70957	9.61665	-13.401	1.0	19.1	0.3	81.3	4.6	176.9	152.2W	
AUG 21	23 38 27.2	-4 -50 -23.1	8.69462	9.61607	-12.482	1.0	19.1	0.3	263.1	4.6	176.9	154.3W	
AUG 23	23 37 58.6	-4 -53 -48.9	8.68074	9.61550	-11.542	1.0	19.1	0.4	84.8	4.6	177.0	156.3W	
AUG 25	23 37 29.1	-4 -57 -18.6	8.66796	9.61492	-10.582	1.0	19.2	0.5	266.6	4.7	177.1	158.4W	
AUG 27	23 36 58.8	-5 -0 -52.1	8.65629	9.61435	-9.605	1.0	19.2	0.5	88.4	4.7	177.1	160.4W	
AUG 29	23 36 27.9	-5 -4 -28.7	8.64577	9.61378	-8.613	1.0	19.2	0.6	270.1	4.7	177.2	162.5W	
AUG 31	23 35 56.4	-5 -8 -7.9	8.63640	9.61320	-7.608	1.0	19.2	0.7	91.9	4.7	177.3	164.5W	
SEP 2	23 35 24.3	-5 -11 -49.3	8.62819	9.61263	-6.593	0.9	19.3	0.8	273.6	4.7	177.3	166.6W	
SEP 4	23 34 51.8	-5 -15 -32.3	8.62117	9.61205	-5.570	0.9	19.3	0.8	95.4	4.7	177.4	168.6W	
SEP 6	23 34 18.8	-5 -19 -16.7	8.61532	9.61148	-4.541	0.9	19.3	0.9	277.1	4.7	177.5	170.7W	
SEP 8	23 33 45.5	-5 -23 -2.0	8.61067	9.61090	-3.507	0.9	19.3	1.0	98.9	4.7	177.5	172.7W	
SEP 10	23 33 12.0	-5 -26 -47.8	8.60722	9.61033	-2.467	0.9	19.3	1.1	280.6	4.7	177.6	174.6W	
SEP 12	23 32 38.2	-5 -30 -33.5	8.60497	9.60975	-1.423	0.9	19.3	1.1	102.3	4.8	177.7	176.4W	
SEP 14	23 32 4.3	-5 -34 -18.6	8.60393	9.60918	-0.373	0.9	19.3	1.2	284.1	4.8	177.7	177.6W	
SEP 16	23 31 30.3	-5 -38 -2.7	8.60411	9.60860	0.680	0.9	19.3	1.3	105.8	4.8	177.8	177.2E	
SEP 18	23 30 56.3	-5 -41 -45.4	8.60550	9.60803	1.735	0.9	19.3	1.3	287.5	4.8	177.9	175.8E	
SEP 20	23 30 22.4	-5 -45 -26.2	8.60811	9.60745	2.790	0.9	19.3	1.4	109.2	4.8	177.9	173.9E	
SEP 22	23 29 48.7	-5 -49 -4.6	8.61194	9.60688	3.845	0.9	19.3	1.5	290.9	4.8	178.0	171.9E	
SEP 24	23 29 15.1	-5 -52 -40.3	8.61699	9.60630	4.895	0.9	19.3	1.6	112.6	4.8	178.1	169.9E	
SEP 26	23 28 41.9	-5 -56 -12.5	8.62325	9.60572	5.940	0.9	19.3	1.6	294.3	4.8	178.1	167.8E	
SEP 28	23 28 9.0	-5 -59 -40.9	8.63071	9.60515	6.976	0.9	19.3	1.7	116.0	4.8	178.2	165.7E	
SEP 30	23 27 36.6	-6 -3 -4.9	8.63936	9.60457	7.999	0.9	19.2	1.8	297.7	4.8	178.3	163.6E	
OCT 2	23 27 4.8	-6 -6 -24.2	8.64918	9.60400	9.009	0.9	19.2	1.8	119.3	4.9	178.3	161.6E	
OCT 4	23 26 33.5	-6 -9 -38.5	8.66016	9.60342	10.004	0.9	19.2	1.9	301.0	4.9	178.4	159.5E	
OCT 6	23 26 2.8	-6 -12 -47.3	8.67228	9.60284	10.983	0.9	19.2	2.0	122.7	4.9	178.5	157.4E	
OCT 8	23 25 32.9	-6 -15 -50.3	8.68552	9.60227	11.946	0.9	19.1	2.0	304.3	4.9	178.5	155.3E	
OCT 10	23 25 3.8	-6 -18 -47.0	8.69987	9.60169	12.893	1.0	19.1	2.1	125.9	4.9	178.6	153.2E	
OCT 12	23 24 35.5	-6 -21 -37.2	8.71530	9.60111	13.824	1.0	19.1	2.1	307.6	4.9	178.7	151.1E	
OCT 14	23 24 8.1	-6 -24 -20.4	8.73180	9.60054	14.738	1.0	19.0	2.2	129.2	4.9	178.7	149.0E	
OCT 16	23 23 41.7	-6 -26 -56.4	8.74934	9.59996	15.633	1.0	19.0	2.2	310.8	4.9	178.8	146.9E	
OCT 18	23 23 16.3	-6 -29 -24.8	8.76790	9.59938	16.508	1.0	19.0	2.3	132.4	4.9	178.9	144.8E	
OCT 20	23 22 51.9	-6 -31 -45.4	8.78747	9.59880	17.362	1.0	18.9	2.3	314.0	4.9	178.9	142.7E	
OCT 22	23 22 28.7	-6 -33 -57.9	8.80800	9.59823	18.191	1.0	18.9	2.4	135.6	4.9	179.0	140.6E	
OCT 24	23 22 6.6	-6 -36 -2.0	8.82948	9.59765	18.996	1.0	18.8	2.4	317.1	5.0	179.0	138.5E	
OCT 26	23 21 45.8	-6 -37 -57.2	8.85187	9.59707	19.772	1.0	18.8	2.5	138.7	5.0	179.1	136.5E	
OCT 28	23 21 26.2	-6 -39 -43.4	8.87514	9.59649	20.517	1.0	18.7	2.5	320.3	5.0	179.2	134.4E	
OCT 30	23 21 8.0	-6 -41 -20.5	8.89926	9.59592	21.232	1.1	18.7	2.5	141.8	5.0	179.2	132.3E	
NOV 1	23 20 51.1	-6 -44 -48.3	8.92418	9.59534	21.914	1.1	18.6	2.6	323.4	5.0	179.3	130.2E	
NOV 3	23 20 35.5	-6 -47 -6.8	8.94987	9.59476	22.566	1.1	18.6	2.6	144.9	5.0	179.4	128.2E	
NOV 5	23 20 21.4	-6 -49 -15.6	8.97630	9.59418	23.187	1.1	18.5	2.6	326.4	5.0	179.4	126.1E	
NOV 7	23 20 8.7	-6 -46 -14.6	9.00342	9.59360	23.778	1.1	18.5	2.6	147.9	5.0	179.5	124.1E	
NOV 9	23 19 57.5	-6 -47 -3.8	9.03121	9.59303	24.339	1.1	18.4	2.7	329.4	5.0	179.6	122.0E	
NOV 11	23 19 47.8	-6 -47 -43.1	9.05964	9.59245	24.870	1.1	18.3	2.7	150.9	5.0	179.6	120.0E	
NOV 13	23 19 39.6	-6 -48 -12.3	9.08866	9.59187	25.370	1.1	18.3	2.7	332.4	5.0	179.7	117.9E	
NOV 15	23 19 32.9	-6 -48 -31.6	9.11823	9.59129	25.838	1.1	18.2	2.7	153.9	5.0	179.8	115.9E	
NOV 17	23 19 27.7	-6 -48 -40.7	9.14833	9.59071	26.273	1.2	18.2	2.7	335.3	5.0	179.8	113.8E	
NOV 19	23 19 24.1	-6 -48 -39.6	9.17891	9.59013	26.675	1.2	18.1	2.7	156.8	5.0	179.9	111.8E	
NOV 21	23 19 22.0	-6 -48 -28.2	9.20994	9.58955	27.041	1.2	18.0	2.7	338.3	5.0	180.0	109.8E	
NOV 23	23 19 21.6	-6 -48 -6.5	9.24137	9.58898	27.371	1.2	18.0	2.7	159.7	5.0	180.0	107.8E	
NOV 25	23 19 22.7	-6 -47 -34.5	9.27316	9.58840	27.663	1.2	17.9	2.7	341.1	5.0	180.1	105.8E	
NOV 27	23 19 25.4	-6 -46 -52.3	9.30526	9.58782	27.917	1.2	17.9	2.7	162.6	5.0	180.2	103.8E	
NOV 29	23 19 29.8	-6 -46 0.0	9.33764	9.58724	28.134	1.2	17.8	2.7	344.0	5.0	180.2	101.8E	
DEC 1	23 19 35.7	-6 -44 -57.7	9.37024	9.58666	28.316	1.2	17.7	2.6	165.4	5.0	180.3	99.8E	
DEC 3	23 19 43.1	-6 -43 -45.3	9.40304	9.58608	28.464	1.2	17.7	2.6	346.8	5.0	180.4	97.8E	
DEC 5	23 19 52.2	-6 -42 -23.0	9.43599	9.58550	28.578	1.2	17.6	2.6	168.2	5.0	180.4	95.8E	
DEC 7	23 20 2.8	-6 -40 -50.8	9.46905	9.58492	28.660	1.3	17.6	2.6	349.6	5.0	180.5	93.8E	
DEC 9	23 20 14.9	-6 -39 -8.8	9.50219	9.58434	28.710	1.3	17.5	2.5	171.0	5.0	180.6	91.8E	
DEC 11	23 20 28.6	-6 -37 -17.2	9.53536	9.58376	28.728	1.3	17.4	2.5	352.4	5.0	180.6	89.9E	
DEC 13	23 20 43.8	-6 -35 -16.1	9.56854	9.58318	28.713	1.3	17.4	2.5	173.7	5.0	180.7	87.9E	
DEC 15	23 21 0.5	-6 -33 -5.7	9.60168	9.58260	28.666	1.3	17.3	2.4	355.1	5.0	180.8	86.0E	
DEC 17	23 21 18.6	-6 -30 -45.9	9.63475	9.58202	28.586	1.3	17.2	2.4	176.5	5.0	180.8	84.0E	
DEC 19	23 21 38.3	-6 -28 -16.9	9.66771	9.58144	28.472	1.3	17.2	2.3	357.8	5.0	180.9	8	

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	23 24 35.6	-6 -6 -49.7	9.89198	9.57738	26.745	1.4	16.8	1.9	187.2	4.9	181.4	68.6E	
JAN 4	23 25 6.3	-6 -3 -13.2	9.92267	9.57680	26.382	1.4	16.7	1.8	188.5	4.9	181.4	66.7E	
JAN 6	23 25 38.2	-5 -59 -29.1	9.95292	9.57622	25.993	1.4	16.7	1.8	189.8	4.9	181.5	64.8E	
JAN 8	23 26 11.3	-5 -55 -37.7	9.98271	9.57563	25.579	1.4	16.6	1.7	111.1	4.9	181.6	62.9E	
JAN 10	23 26 45.6	-5 -51 -39.1	10.01200	9.57505	25.140	1.4	16.6	1.6	192.4	4.9	181.6	61.1E	
JAN 12	23 27 21.0	-5 -47 -33.6	10.04078	9.57447	24.676	1.4	16.6	1.5	13.8	4.9	181.7	59.2E	
JAN 14	23 27 57.6	-5 -43 -21.2	10.06900	9.57389	24.187	1.4	16.5	1.4	195.1	4.8	181.8	57.3E	
JAN 16	23 28 35.3	-5 -39 -2.1	10.09665	9.57331	23.672	1.4	16.5	1.3	16.4	4.8	181.8	55.5E	
JAN 18	23 29 14.0	-5 -34 -36.6	10.12368	9.57273	23.131	1.4	16.4	1.3	197.7	4.8	181.9	53.6E	
JAN 20	23 29 53.8	-5 -30 -4.8	10.15008	9.57215	22.565	1.4	16.4	1.2	19.0	4.8	182.0	51.7E	
JAN 22	23 30 34.6	-5 -25 -27.2	10.17580	9.57156	21.973	1.4	16.3	1.1	200.3	4.8	182.0	49.9E	
JAN 24	23 31 16.4	-5 -20 -43.8	10.20083	9.57098	21.359	1.4	16.3	1.0	21.6	4.8	182.1	48.1E	
JAN 26	23 31 59.1	-5 -15 -55.0	10.22514	9.57040	20.725	1.4	16.3	0.9	202.9	4.8	182.2	46.2E	
JAN 28	23 32 42.6	-5 -11 -0.9	10.24870	9.56982	20.072	1.4	16.2	0.8	24.2	4.8	182.2	44.4E	
JAN 30	23 33 27.1	-5 -6 -1.8	10.27150	9.56924	19.403	1.4	16.2	0.7	205.5	4.7	182.3	42.6E	
FEB 1	23 34 12.4	-5 0 -57.8	10.29352	9.56866	18.717	1.4	16.1	0.6	26.8	4.7	182.4	40.7E	
FEB 3	23 34 58.4	-4 -55 -49.3	10.31474	9.56807	18.017	1.4	16.1	0.5	208.1	4.7	182.4	38.9E	
FEB 5	23 35 45.2	-4 -50 -36.4	10.33514	9.56749	17.301	1.4	16.1	0.4	29.4	4.7	182.5	37.1E	
FEB 7	23 36 32.7	-4 -45 -19.5	10.35471	9.56691	16.572	1.4	16.1	0.3	210.7	4.7	182.6	35.3E	
FEB 9	23 37 20.9	-4 -39 -58.7	10.37342	9.56633	15.828	1.4	16.0	0.2	32.0	4.7	182.6	33.5E	
FEB 11	23 38 9.8	-4 -34 -34.1	10.39127	9.56575	15.070	1.4	16.0	0.1	213.4	4.6	182.7	31.7E	
FEB 13	23 38 59.2	-4 -29 -6.0	10.40823	9.56516	14.298	1.4	16.0	0.0	34.7	4.6	182.8	29.9E	
FEB 15	23 39 49.3	-4 -23 -34.5	10.42430	9.56458	13.510	1.4	15.9	-0.1	216.0	4.6	182.8	28.1E	
FEB 17	23 40 40.0	-4 -17 -60.0	10.43944	9.56400	12.708	1.4	15.9	-0.2	37.3	4.6	182.9	26.3E	
FEB 19	23 41 31.1	-4 -12 -22.8	10.45365	9.56342	11.893	1.4	15.9	-0.4	218.6	4.6	183.0	24.5E	
FEB 21	23 42 22.8	-4 -6 -43.0	10.46692	9.56283	11.067	1.4	15.9	-0.5	39.9	4.6	183.0	22.8E	
FEB 23	23 43 14.8	-4 -1 -1.0	10.47922	9.56225	10.233	1.4	15.9	-0.6	221.3	4.5	183.1	21.0E	
FEB 25	23 44 7.3	-3 -55 -16.8	10.49056	9.56167	9.392	1.4	15.8	-0.7	42.6	4.5	183.2	19.2E	
FEB 27	23 45 0.2	-3 -49 -30.8	10.50092	9.56109	8.546	1.4	15.8	-0.8	223.9	4.5	183.2	17.5E	
FEB 29	23 45 53.4	-3 -43 -43.2	10.51030	9.56050	7.695	1.4	15.8	-0.9	45.2	4.5	183.3	15.7E	
MAR 2	23 46 46.9	-3 -37 -54.2	10.51870	9.55992	6.841	1.3	15.8	-1.0	226.6	4.5	183.4	14.0E	
MAR 4	23 47 40.7	-3 -32 -4.1	10.52610	9.55934	5.983	1.3	15.8	-1.1	47.9	4.5	183.4	12.2E	
MAR 6	23 48 34.7	-3 -26 -13.1	10.53252	9.55876	5.122	1.3	15.8	-1.3	229.2	4.4	183.5	10.5E	
MAR 8	23 49 28.9	-3 -20 -21.4	10.53794	9.55817	4.258	1.3	15.8	-1.4	50.6	4.4	183.6	8.8E	
MAR 10	23 50 23.3	-3 -14 -29.1	10.54236	9.55759	3.391	1.3	15.8	-1.5	231.9	4.4	183.6	7.1E	
MAR 12	23 51 17.9	-3 -8 -36.4	10.54577	9.55701	2.521	1.3	15.8	-1.6	53.3	4.4	183.7	5.4E	
MAR 14	23 52 12.6	-3 -2 -43.6	10.54818	9.55642	1.646	1.3	15.8	-1.7	234.7	4.4	183.8	3.9E	
MAR 16	23 53 7.3	-2 -56 -50.9	10.54958	9.55584	0.769	1.3	15.8	-1.8	56.0	4.3	183.8	2.6E	
MAR 18	23 54 2.1	-2 -50 -58.7	10.54996	9.55526	-0.110	1.3	15.8	-1.9	237.4	4.3	183.9	2.0E	
MAR 20	23 54 56.9	-2 -45 -7.1	10.54933	9.55467	-0.989	1.3	15.8	-2.1	58.7	4.3	184.0	2.8W	
MAR 22	23 55 51.7	-2 -39 -16.3	10.54768	9.55409	-1.865	1.3	15.8	-2.2	240.1	4.3	184.0	4.2W	
MAR 24	23 56 46.4	-2 -33 -26.6	10.54502	9.55351	-2.737	1.3	15.8	-2.3	61.5	4.3	184.1	5.8W	
MAR 26	23 57 41.1	-2 -27 -38.1	10.54136	9.55292	-3.603	1.3	15.8	-2.4	242.9	4.3	184.2	7.4W	
MAR 28	23 58 35.6	-2 -21 -51.1	10.53670	9.55234	-4.463	1.3	15.8	-2.5	64.3	4.2	184.2	9.1W	
MAR 30	23 59 30.0	-2 -16 -5.9	10.53106	9.55176	-5.317	1.3	15.8	-2.6	245.7	4.2	184.3	10.8W	
APR 1	0 0 24.1	-2 -10 -22.6	10.52443	9.55117	-6.163	1.3	15.8	-2.7	67.1	4.2	184.4	12.5W	
APR 3	0 1 18.1	-2 -4 -41.5	10.51682	9.55059	-7.002	1.3	15.8	-2.9	248.5	4.2	184.4	14.2W	
APR 5	0 2 11.8	-1 -59 -2.7	10.50826	9.55001	-7.834	1.3	15.8	-3.0	69.9	4.2	184.5	15.9W	
APR 7	0 3 5.2	-1 -53 -26.4	10.49873	9.54942	-8.659	1.3	15.8	-3.1	251.3	4.1	184.6	17.6W	
APR 9	0 3 58.4	-1 -47 -52.7	10.48826	9.54884	-9.478	1.3	15.8	-3.2	72.7	4.1	184.6	19.3W	
APR 11	0 4 51.2	-1 -42 -21.9	10.47684	9.54826	-10.291	1.3	15.9	-3.3	254.2	4.1	184.7	21.0W	
APR 13	0 5 43.6	-1 -36 -54.3	10.46449	9.54767	-11.098	1.3	15.9	-3.4	75.6	4.1	184.8	22.8W	
APR 15	0 6 35.6	-1 -31 -30.1	10.45121	9.54709	-11.895	1.3	15.9	-3.5	257.0	4.1	184.8	24.5W	
APR 17	0 7 27.2	-1 -26 -9.5	10.43701	9.54651	-12.683	1.3	15.9	-3.6	78.5	4.0	184.9	26.2W	
APR 19	0 8 18.4	-1 -20 -52.6	10.42191	9.54592	-13.458	1.3	15.9	-3.7	259.9	4.0	185.0	27.9W	
APR 21	0 9 9.0	-1 -15 -39.7	10.40593	9.54534	-14.219	1.3	16.0	-3.8	81.4	4.0	185.0	29.6W	
APR 23	0 9 59.2	-1 -10 31.0	10.38907	9.54475	-14.966	1.3	16.0	-3.9	262.9	4.0	185.1	31.4W	
APR 25	0 10 48.7	-1 -5 -26.7	10.37136	9.54417	-15.697	1.3	16.0	-4.0	84.3	4.0	185.2	33.1W	
APR 27	0 11 37.7	-1 0 -27.0	10.35282	9.54359	-16.412	1.3	16.1	-4.1	265.8	4.0	185.2	34.8W	
APR 29	0 12 26.0	0 -55 32.2	10.33346	9.54300	-17.111	1.3	16.1	-4.2	87.3	3.9	185.3	36.5W	
MAY 1	0 13 13.7	0 -50 -42.3	10.31330	9.54242	-17.794	1.3	16.1	-4.3	268.8	3.9	185.4	38.3W	
MAY 3	0 14 0.7	0 -45 -57.6	10.29236	9.54184	-18.462	1.3	16.1	-4.4	90.3	3.9	185.4	40.0W	
MAY 5	0 14 47.0	0 -41 18.1	10.27065	9.54125	-19.114	1.3	16.2	-4.5	271.8	3.9	185.5	41.7W	
MAY 7	0 15 32.7	0 -36 -44.0	10.24821	9.54067	-19.752	1.3	16.2	-4.6	93.3	3.9	185.6	43.4W	
MAY 9	0 16 17.5	0 -32 -15.6	10.22503	9.54008	-20.376	1.3	16.3	-4.7	274.8	3.9	185.6	45.2W	
MAY 11	0 17 1.5	0 -27 -53.1	10.20114	9.53950	-20.984	1.3	16.3	-4.7	96.3	3.8	185.7	46.9W	
MAY 13	0 17 44.8	0 -23 -36.7	10.17656	9.53892	-21.575	1.2	16.3	-4.8	277.8	3.8	185.8	48.6W	
MAY 15	0 18 27.1	0 -19 26.6	10.15131	9.53833	-22.147	1.2	16.4	-4.9	99.4	3.8	185.8	50.4W	
MAY 17	0 19 8.6	0 -15 -22.9	10.12541	9.53775	-22.698	1.2	16.4	-5.0	280.9	3.8	185.9	52.1W	
MAY 19	0 19 49.2	0 -11 -25.8	10.09888	9.53716	-23.227	1.2	16.5	-5.1	102.5	3.8	186.0	53.9W	
MAY 21	0 20 28.9	0 -7 -35.5	10.07176	9.53658	-23.733	1.2	16.5	-5.1	284.0	3.8	186.0	55.6W	
MAY 23	0 21 7.5	0 -3 -52.2	10.04407	9.53600	-24.216	1.2	16.5	-5.2	105.6	3.7	186.1	57.4W	
MAY 25	0 21 45.2	0 0 -16.0	10.01583	9.53541	-24.676	1.2	16.6	-5.3	287.1	3.7	186.2	59.1W	
MAY 27	0 22 21.8	0 3 12.8	9.98707	9.53483	-25.111	1.2	16.6	-5.3	108.7	3.7	186.2	60.9W	
MAY 29	0 22 57.4	0 6 34.1	9.95782	9.53424	-25.524	1.2	16.7	-5.4	290.3	3.7	186.3	62.6W	
MAY 31	0 23 31.9	0 9 47.9	9.92812	9.53366	-25.913	1.2	16.7	-5.5	111.9	3.7	186.4	64.4W	
JUN 2	0 24 5.3	0 12 54.1	9.89797	9.53308	-26.280	1.2	16.8	-5.5	293.5	3.7	186.4	66.1W	
JUN 4	0 24 37.6	0 15 52.5	9.86741	9.53249	-26.625	1.2	16.8	-5.6	115.1	3.7	186.5	67.9W	
JUN 6	0 25 8.8	0 18 42.8	9.83647	9.53191	-26.949	1.2	16.9	-5.6	296.7	3.7	186.6	69.7W	
JUN 8	0 25 38.8	0 21 24.9	9.80517	9.53132	-27.251	1.2	16.9	-5.7	118.3	3.6	186.6	71.5W	
JUN 10	0 26 7.5	0 23 58.7	9.77353	9.53074	-27.527	1.2	17.0	-5.7	299.9	3.6	186.7	73.3W	
JUN 12	0 26 35.1	0 26 24.0	9.74158	9.53015	-27.777	1.2	17.1	-5.8	121.5	3.6	186.8	75.0W	
JUN 14	0 27 1.4	0 28 40.8	9.70937	9.52957	-28.000	1.2	17.1	-5.8	303.2	3.6	186.8	76.8W	
JUN 16	0 27 26.4	0 30 48.9	9.67691	9.52899	-28.193	1.2	17.2	-5.9	124.8	3.6	186.9	78.6W	
JUN 18	0 27 50.1	0 32 48.2	9.64425	9.52840	-28.357	1.2	17.2	-5.9	306.4	3.6	187.0	80.4W	
JUN 20	0 28 12.5	0 34 38.5	9.61141	9.52782	-28.491	1.1	17.3	-6.0	128.1	3.6	187.0	82.3W	
JUN 22	0 28 33.5	0 36 19.7	9.57844	9.52723	-28.595								

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	0 29 58.0	0 42 27.5	9.41270	9.52431	-28.682	1.1	17.7	-6.1	138.1	3.5	187.5	93.2W	
JUL 4	0 30 10.7	0 43 13.1	9.37960	9.52373	-28.618	1.1	17.7	-6.1	319.8	3.5	187.5	95.1W	
JUL 6	0 30 21.9	0 43 49.1	9.34660	9.52314	-28.525	1.1	17.8	-6.1	141.5	3.5	187.6	96.9W	
JUL 8	0 30 31.6	0 44 15.5	9.31372	9.52256	-28.402	1.1	17.8	-6.2	323.2	3.5	187.7	98.8W	
JUL 10	0 30 39.9	0 44 32.3	9.28099	9.52198	-28.248	1.1	17.9	-6.2	144.9	3.5	187.7	100.7W	
JUL 12	0 30 46.7	0 44 39.6	9.24847	9.52139	-28.061	1.0	18.0	-6.2	326.6	3.5	187.8	102.6W	
JUL 14	0 30 52.0	0 44 37.2	9.21618	9.52081	-27.841	1.0	18.0	-6.2	148.3	3.5	187.9	104.4W	
JUL 16	0 30 55.8	0 44 25.3	9.18416	9.52022	-27.587	1.0	18.1	-6.2	330.1	3.5	187.9	106.3W	
JUL 18	0 30 58.0	0 44 3.6	9.15246	9.51964	-27.301	1.0	18.2	-6.2	151.8	3.5	188.0	108.2W	
JUL 20	0 30 58.8	0 43 32.4	9.12111	9.51905	-26.982	1.0	18.2	-6.1	333.5	3.5	188.1	110.1W	
JUL 22	0 30 58.1	0 42 51.6	9.09014	9.51847	-26.630	1.0	18.3	-6.1	155.3	3.5	188.1	112.1W	
JUL 24	0 30 55.8	0 42 1.5	9.05960	9.51788	-26.247	1.0	18.3	-6.1	337.0	3.5	188.2	114.0W	
JUL 26	0 30 52.1	0 41 2.0	9.02951	9.51730	-25.833	1.0	18.4	-6.1	158.7	3.5	188.3	115.9W	
JUL 28	0 30 46.9	0 39 53.4	8.99993	9.51672	-25.391	1.0	18.5	-6.1	340.5	3.5	188.3	117.8W	
JUL 30	0 30 40.3	0 38 35.7	8.97087	9.51613	-24.921	1.0	18.5	-6.1	162.2	3.5	188.4	119.8W	
AUG 1	0 30 32.2	0 37 8.9	8.94236	9.51555	-24.424	0.9	18.6	-6.0	344.0	3.5	188.5	121.7W	
AUG 3	0 30 22.6	0 35 33.1	8.91445	9.51496	-23.897	0.9	18.6	-6.0	165.7	3.5	188.5	123.7W	
AUG 5	0 30 11.6	0 33 48.6	8.88717	9.51438	-23.341	0.9	18.7	-6.0	347.5	3.5	188.6	125.7W	
AUG 7	0 29 59.2	0 31 55.5	8.86054	9.51379	-22.754	0.9	18.8	-5.9	169.3	3.5	188.7	127.6W	
AUG 9	0 29 45.4	0 29 54.0	8.83461	9.51321	-22.135	0.9	18.8	-5.9	351.0	3.5	188.7	129.6W	
AUG 11	0 29 30.2	0 27 44.3	8.80941	9.51263	-21.486	0.9	18.9	-5.9	172.8	3.6	188.8	131.6W	
AUG 13	0 29 13.6	0 25 26.5	8.78498	9.51204	-20.805	0.9	18.9	-5.8	354.6	3.6	188.9	133.6W	
AUG 15	0 28 55.8	0 23 0.9	8.76136	9.51146	-20.095	0.9	19.0	-5.8	176.3	3.6	188.9	135.6W	
AUG 17	0 28 36.6	0 20 27.7	8.73857	9.51087	-19.357	0.9	19.0	-5.7	358.1	3.6	189.0	137.6W	
AUG 19	0 28 16.2	0 17 47.2	8.71665	9.51029	-18.591	0.8	19.1	-5.7	179.9	3.6	189.1	139.6W	
AUG 21	0 27 54.6	0 14 59.8	8.69563	9.50970	-17.800	0.8	19.1	-5.6	1.7	3.6	189.1	141.6W	
AUG 23	0 27 31.8	0 12 5.9	8.67553	9.50912	-16.985	0.8	19.2	-5.6	183.4	3.6	189.2	143.7W	
AUG 25	0 27 7.9	0 9 5.7	8.65639	9.50853	-16.149	0.8	19.2	-5.5	5.2	3.6	189.3	145.7W	
AUG 27	0 26 42.9	0 5 59.6	8.63823	9.50795	-15.292	0.8	19.2	-5.5	187.0	3.6	189.3	147.7W	
AUG 29	0 26 16.9	0 2 47.8	8.62107	9.50737	-14.416	0.8	19.3	-5.4	8.8	3.6	189.4	149.8W	
AUG 31	0 25 50.0	0 0-29.3	8.60493	9.50678	-13.520	0.8	19.3	-5.3	190.5	3.6	189.5	151.8W	
SEP 2	0 25 22.0	0 -3-51.3	8.58984	9.50620	-12.604	0.8	19.3	-5.3	12.3	3.6	189.5	153.9W	
SEP 4	0 24 53.3	0 -7-17.8	8.57582	9.50561	-11.667	0.8	19.4	-5.2	194.1	3.7	189.6	155.9W	
SEP 6	0 24 23.6	0 -10-48.3	8.56289	9.50503	-10.710	0.8	19.4	-5.1	15.8	3.7	189.7	158.0W	
SEP 8	0 23 53.3	0 -14-22.6	8.55108	9.50445	-9.735	0.7	19.4	-5.1	197.6	3.7	189.7	160.1W	
SEP 10	0 23 22.2	0 -18-0.2	8.54041	9.50386	-8.742	0.7	19.5	-5.0	19.4	3.7	189.8	162.1W	
SEP 12	0 22 50.5	0 -21-40.7	8.53089	9.50328	-7.734	0.7	19.5	-4.9	201.1	3.7	189.9	164.2W	
SEP 14	0 22 18.2	0 -25-23.6	8.52254	9.50269	-6.712	0.7	19.5	-4.9	22.9	3.7	189.9	166.3W	
SEP 16	0 21 45.4	0 -29-8.3	8.51539	9.50211	-5.679	0.7	19.5	-4.8	204.6	3.7	190.0	168.3W	
SEP 18	0 21 12.1	0 -32-54.4	8.50943	9.50152	-4.637	0.7	19.5	-4.7	26.4	3.7	190.1	170.4W	
SEP 20	0 20 38.6	0 -36-41.3	8.50467	9.50094	-3.589	0.7	19.5	-4.7	208.1	3.8	190.1	172.4W	
SEP 22	0 20 4.7	0 -40-28.5	8.50113	9.50036	-2.537	0.7	19.5	-4.6	29.9	3.8	190.2	174.3W	
SEP 24	0 19 30.7	0 -44-15.7	8.49881	9.49977	-1.483	0.7	19.6	-4.5	211.6	3.8	190.3	176.0W	
SEP 26	0 18 56.5	0 -48-2.4	8.49771	9.49919	-0.428	0.7	19.6	-4.4	33.3	3.8	190.3	177.2W	
SEP 28	0 18 22.3	0 -51-48.2	8.49782	9.49860	0.628	0.7	19.6	-4.4	215.1	3.8	190.4	177.1E	
SEP 30	0 17 48.0	0 -55-32.4	8.49916	9.49802	1.685	0.7	19.6	-4.3	36.8	3.8	190.5	175.7E	
OCT 2	0 17 13.9	0 -59-14.6	8.50171	9.49744	2.743	0.7	19.5	-4.2	218.5	3.8	190.6	173.9E	
OCT 4	0 16 39.8	-1 -2-54.4	8.50549	9.49685	3.799	0.7	19.5	-4.1	40.2	3.8	190.6	171.9E	
OCT 6	0 16 6.1	-1 -6-31.3	8.51048	9.49627	4.854	0.7	19.5	-4.1	221.9	3.9	190.7	169.9E	
OCT 8	0 15 32.6	-1 -10-4.8	8.51670	9.49568	5.904	0.7	19.5	-4.0	43.6	3.9	190.8	167.8E	
OCT 10	0 14 59.4	-1 -13-34.6	8.52412	9.49510	6.947	0.8	19.5	-3.9	225.3	3.9	190.8	165.8E	
OCT 12	0 14 26.7	-1 -17-0.0	8.53274	9.49452	7.982	0.8	19.5	-3.9	47.0	3.9	190.9	163.7E	
OCT 14	0 13 54.6	-1 -20-20.6	8.54255	9.49393	9.005	0.8	19.5	-3.8	228.6	3.9	191.0	161.6E	
OCT 16	0 13 23.0	-1 -23-36.0	8.55353	9.49335	10.015	0.8	19.4	-3.7	50.3	3.9	191.0	159.5E	
OCT 18	0 12 52.2	-1 -26-45.5	8.56568	9.49276	11.008	0.8	19.4	-3.7	232.0	3.9	191.1	157.3E	
OCT 20	0 12 22.0	-1 -29-49.0	8.57895	9.49218	11.982	0.8	19.4	-3.6	53.6	3.9	191.2	155.2E	
OCT 22	0 11 52.7	-1 -32-46.1	8.59335	9.49160	12.937	0.8	19.3	-3.6	235.3	3.9	191.2	153.1E	
OCT 24	0 11 24.2	-1 -35-36.3	8.60883	9.49101	13.871	0.9	19.3	-3.5	56.9	4.0	191.3	151.0E	
OCT 26	0 10 56.6	-1 -38-19.5	8.62538	9.49043	14.785	0.9	19.3	-3.5	238.5	4.0	191.4	148.9E	
OCT 28	0 10 30.0	-1 -40-55.0	8.64298	9.48985	15.680	0.9	19.2	-3.4	60.1	4.0	191.4	146.8E	
OCT 30	0 10 4.5	-1 -43-22.7	8.66159	9.48926	16.554	0.9	19.2	-3.4	241.7	4.0	191.5	144.7E	
NOV 1	0 9 40.0	-1 -45-42.3	8.68121	9.48868	17.407	0.9	19.1	-3.3	63.3	4.0	191.6	142.6E	
NOV 3	0 9 16.7	-1 -47-53.5	8.70180	9.48810	18.238	0.9	19.1	-3.3	244.9	4.0	191.6	140.5E	
NOV 5	0 8 54.5	-1 -49-56.0	8.72333	9.48751	19.044	0.9	19.1	-3.2	66.5	4.0	191.7	138.4E	
NOV 7	0 8 33.5	-1 -51-49.6	8.74578	9.48693	19.824	1.0	19.0	-3.2	248.0	4.0	191.8	136.3E	
NOV 9	0 8 13.9	-1 -53-34.0	8.76912	9.48635	20.577	1.0	19.0	-3.2	69.6	4.0	191.8	134.2E	
NOV 11	0 7 55.5	-1 -55-8.9	8.79330	9.48576	21.301	1.0	18.9	-3.1	251.2	4.0	191.9	132.1E	
NOV 13	0 7 38.6	-1 -56-34.1	8.81831	9.48518	21.992	1.0	18.8	-3.1	72.7	4.0	192.0	130.0E	
NOV 15	0 7 23.0	-1 -57-49.3	8.84410	9.48460	22.651	1.0	18.8	-3.1	254.2	4.0	192.0	128.0E	
NOV 17	0 7 8.9	-1 -58-54.6	8.87062	9.48401	23.275	1.0	18.7	-3.1	75.7	4.0	192.1	125.9E	
NOV 19	0 6 56.2	-1 -59-49.8	8.89785	9.48343	23.865	1.0	18.7	-3.0	257.3	4.1	192.2	123.8E	
NOV 21	0 6 45.0	-2 0-34.9	8.92574	9.48285	24.422	1.0	18.6	-3.0	78.8	4.1	192.2	121.8E	
NOV 23	0 6 35.3	-2 -1-9.6	8.95426	9.48226	24.945	1.1	18.6	-3.0	260.3	4.1	192.3	119.7E	
NOV 25	0 6 27.2	-2 -1-33.9	8.98336	9.48168	25.437	1.1	18.5	-3.0	81.7	4.1	192.4	117.6E	
NOV 27	0 6 20.6	-2 -1-47.7	9.01301	9.48110	25.898	1.1	18.4	-3.0	263.2	4.1	192.4	115.6E	
NOV 29	0 6 15.5	-2 -1-51.1	9.04317	9.48052	26.326	1.1	18.4	-3.0	84.7	4.1	192.5	113.6E	
DEC 1	0 6 12.0	-2 -1-44.0	9.07381	9.47993	26.721	1.1	18.3	-3.0	266.1	4.1	192.6	111.5E	
DEC 3	0 6 10.0	-2 -1-26.4	9.10489	9.47935	27.084	1.1	18.3	-3.0	87.6	4.1	192.6	109.5E	
DEC 5	0 6 9.7	-2 0-58.3	9.13637	9.47877	27.412	1.1	18.2	-3.0	269.0	4.1	192.7	107.5E	
DEC 7	0 6 10.9	-2 0-19.7	9.16820	9.47818	27.705	1.1	18.1	-3.0	90.5	4.1	192.8	105.4E	
DEC 9	0 6 13.7	-1 -59-30.5	9.20036	9.47760	27.962	1.1	18.1	-3.0	271.9	4.1	192.9	103.4E	
DEC 11	0 6 18.2	-1 -58-30.7	9.23278	9.47702	28.182	1.2	18.0	-3.0	93.3	4.1	192.9	101.4E	
DEC 13	0 6 24.2	-1 -57-20.5	9.26545	9.47644	28.363	1.2	17.9	-3.1	274.7	4.1	193.0	99.4E	
DEC 15	0 6 31.8	-1 -56-0.1	9.29829	9.47585	28.507	1.2	17.9	-3.1	96.1	4.1	193.1	97.4E	
DEC 17	0 6 41.1	-1 -54-29.4	9.33129	9.47527	28.613	1.2	17.8	-3.1	277.5	4.1	193.1	95.4E	
DEC 19	0 6 51.8	-1 -52-48.6	9.36438	9.47469	28.685	1.2	17.7	-3.2	98.9	4.1	193.2	93.5E	
DEC 21	0 7 4.2	-1 -50-57.9	9.39754	9.47411	28.723	1.2	17.7	-3.2	280				

Date (0 DT)	RA [Mean] (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	0 8 50.0	-1-36-31.1	9.59575	9.47062	28.286	1.2	17.3	-3.5	288.5	4.0	193.7	79.8E
JAN 4	0 9 12.8	-1-33-34.4	9.62832	9.47004	28.103	1.2	17.3	-3.5	109.8	4.0	193.7	77.8E
JAN 6	0 9 37.0	-1-30-28.9	9.66066	9.46945	27.888	1.2	17.2	-3.6	291.2	4.0	193.8	75.9E
JAN 8	0 10 2.6	-1-27-14.7	9.69273	9.46887	27.639	1.2	17.1	-3.6	112.5	4.0	193.9	74.0E
JAN 10	0 10 29.6	-1-23-52.0	9.72450	9.46829	27.357	1.2	17.1	-3.7	293.8	4.0	193.9	72.1E
JAN 12	0 10 57.9	-1-20-21.1	9.75592	9.46771	27.043	1.2	17.0	-3.8	115.2	4.0	194.0	70.2E
JAN 14	0 11 27.5	-1-16-42.3	9.78697	9.46713	26.699	1.2	17.0	-3.8	296.5	4.0	194.1	68.3E
JAN 16	0 11 58.4	-1-12-55.8	9.81759	9.46655	26.327	1.2	16.9	-3.9	117.8	3.9	194.1	66.4E
JAN 18	0 12 30.5	-1 -9 -1.6	9.84778	9.46597	25.928	1.2	16.9	-4.0	299.1	3.9	194.2	64.5E
JAN 20	0 13 3.9	-1 -5 -0.1	9.87749	9.46539	25.505	1.2	16.8	-4.1	120.4	3.9	194.3	62.6E
JAN 22	0 13 38.5	-1 0 -51.5	9.90669	9.46480	25.058	1.2	16.8	-4.1	301.7	3.9	194.3	60.7E
JAN 24	0 14 14.2	0 -56 -36.0	9.93537	9.46422	24.588	1.2	16.7	-4.2	123.0	3.9	194.4	58.9E
JAN 26	0 14 51.1	0 -52 -14.0	9.96349	9.46364	24.095	1.2	16.7	-4.3	304.4	3.9	194.5	57.0E
JAN 28	0 15 29.0	0 -47 -45.5	9.99102	9.46306	23.579	1.2	16.6	-4.4	125.7	3.9	194.6	55.2E
JAN 30	0 16 8.0	0 -43 -10.8	10.01795	9.46248	23.041	1.2	16.6	-4.5	307.0	3.9	194.6	53.3E
FEB 1	0 16 48.0	0 -38 -30.1	10.04425	9.46190	22.480	1.2	16.5	-4.6	128.3	3.8	194.7	51.5E
FEB 3	0 17 29.1	0 -33 -43.5	10.06988	9.46132	21.896	1.2	16.5	-4.6	309.6	3.8	194.8	49.6E
FEB 5	0 18 11.1	0 -28 -51.3	10.09482	9.46074	21.289	1.2	16.5	-4.7	130.9	3.8	194.8	47.8E
FEB 7	0 18 54.1	0 -23 -53.8	10.11905	9.46016	20.659	1.2	16.4	-4.8	312.2	3.8	194.9	46.0E
FEB 9	0 19 38.0	0 -18 -51.3	10.14254	9.45958	20.007	1.2	16.4	-4.9	133.5	3.8	195.0	44.1E
FEB 11	0 20 22.7	0 -13 -44.1	10.16527	9.45900	19.335	1.2	16.3	-5.0	314.8	3.8	195.0	42.3E
FEB 13	0 21 8.3	0 -8 -32.2	10.18720	9.45842	18.646	1.2	16.3	-5.1	136.1	3.7	195.1	40.5E
FEB 15	0 21 54.7	0 -3 -16.0	10.20834	9.45784	17.943	1.2	16.3	-5.2	317.4	3.7	195.2	38.7E
FEB 17	0 22 41.8	0 2 4.3	10.22865	9.45726	17.225	1.2	16.2	-5.3	138.7	3.7	195.2	36.9E
FEB 19	0 23 29.7	0 7 28.4	10.24813	9.45668	16.495	1.2	16.2	-5.4	320.0	3.7	195.3	35.1E
FEB 21	0 24 18.3	0 12 56.1	10.26676	9.45610	15.753	1.2	16.2	-5.5	141.3	3.7	195.4	33.3E
FEB 23	0 25 7.5	0 18 27.1	10.28452	9.45552	14.998	1.2	16.2	-5.6	322.6	3.7	195.4	31.5E
FEB 25	0 25 57.3	0 24 1.1	10.30140	9.45494	14.232	1.1	16.1	-5.7	143.9	3.6	195.5	29.8E
FEB 27	0 26 47.7	0 29 38.1	10.31740	9.45436	13.455	1.1	16.1	-5.9	325.2	3.6	195.6	28.0E
MAR 1	0 27 38.7	0 35 17.9	10.33249	9.45378	12.666	1.1	16.1	-6.0	146.5	3.6	195.6	26.2E
MAR 3	0 28 30.3	0 41 0.1	10.34656	9.45320	11.864	1.1	16.1	-6.1	327.8	3.6	195.7	24.5E
MAR 5	0 29 22.3	0 46 44.6	10.35989	9.45262	11.052	1.1	16.0	-6.2	149.1	3.6	195.8	22.7E
MAR 7	0 30 14.8	0 52 31.1	10.37218	9.45205	10.227	1.1	16.0	-6.3	330.5	3.5	195.8	20.9E
MAR 9	0 31 7.8	0 58 19.3	10.38352	9.45147	9.392	1.1	16.0	-6.4	151.8	3.5	195.9	19.2E
MAR 11	0 32 1.1	1 4 9.0	10.39388	9.45089	8.549	1.1	16.0	-6.5	333.1	3.5	196.0	17.5E
MAR 13	0 32 54.8	1 9 59.9	10.40327	9.45031	7.701	1.1	16.0	-6.6	154.4	3.5	196.1	15.7E
MAR 15	0 33 48.8	1 15 52.0	10.41167	9.44973	6.849	1.1	16.0	-6.7	335.7	3.5	196.1	14.0E
MAR 17	0 34 43.1	1 21 44.8	10.41909	9.44915	5.995	1.1	16.0	-6.8	157.1	3.4	196.2	12.3E
MAR 19	0 35 37.7	1 27 38.2	10.42552	9.44857	5.139	1.0	15.9	-7.0	338.4	3.4	196.3	10.6E
MAR 21	0 36 32.5	1 33 31.9	10.43096	9.44799	4.281	1.0	15.9	-7.1	159.8	3.4	196.3	8.9E
MAR 23	0 37 27.4	1 39 25.7	10.43542	9.44742	3.423	1.0	15.9	-7.2	341.1	3.4	196.4	7.2E
MAR 25	0 38 22.5	1 45 19.3	10.43887	9.44684	2.563	1.0	15.9	-7.3	162.4	3.3	196.5	5.6E
MAR 27	0 39 17.8	1 51 12.7	10.44134	9.44626	1.703	1.0	15.9	-7.4	343.8	3.3	196.5	4.0E
MAR 29	0 40 13.1	1 57 5.7	10.44281	9.44568	0.842	1.0	15.9	-7.5	165.1	3.3	196.6	2.7E
MAR 31	0 41 8.5	2 2 58.0	10.44329	9.44510	-0.021	1.0	15.9	-7.6	346.5	3.3	196.7	2.2E
APR 2	0 42 4.0	2 8 49.4	10.44276	9.44453	-0.885	1.0	15.9	-7.7	167.9	3.3	196.7	2.8W
APR 4	0 42 59.5	2 14 39.7	10.44124	9.44395	-1.750	1.0	15.9	-7.8	349.2	3.2	196.8	4.1W
APR 6	0 43 54.9	2 20 28.6	10.43872	9.44337	-2.615	1.0	15.9	-8.0	170.6	3.2	196.9	5.7W
APR 8	0 44 50.3	2 26 15.8	10.43520	9.44279	-3.477	1.0	15.9	-8.1	352.0	3.2	196.9	7.3W
APR 10	0 45 45.5	2 32 1.4	10.43069	9.44222	-4.334	1.0	15.9	-8.2	173.4	3.2	197.0	8.9W
APR 12	0 46 40.7	2 37 44.9	10.42520	9.44164	-5.185	1.0	15.9	-8.3	354.8	3.2	197.1	10.6W
APR 14	0 47 35.6	2 43 26.3	10.41872	9.44106	-6.028	1.0	16.0	-8.4	176.1	3.1	197.1	12.3W
APR 16	0 48 30.4	2 49 5.2	10.41128	9.44048	-6.862	1.0	16.0	-8.5	357.5	3.1	197.2	14.0W
APR 18	0 49 24.9	2 54 41.5	10.40287	9.43991	-7.689	1.0	16.0	-8.6	179.0	3.1	197.3	15.7W
APR 20	0 50 19.2	3 0 14.8	10.39352	9.43933	-8.506	1.0	16.0	-8.7	0.4	3.1	197.3	17.3W
APR 22	0 51 13.2	3 5 45.2	10.38323	9.43875	-9.315	1.0	16.0	-8.8	181.8	3.0	197.4	19.0W
APR 24	0 52 6.8	3 11 12.4	10.37201	9.43818	-10.116	1.0	16.0	-8.9	3.2	3.0	197.5	20.7W
APR 26	0 53 0.1	3 16 36.4	10.35986	9.43760	-10.909	1.0	16.0	-9.0	184.6	3.0	197.6	22.4W
APR 28	0 53 53.1	3 21 56.8	10.34681	9.43703	-11.694	1.0	16.1	-9.1	6.0	3.0	197.6	24.1W
APR 30	0 54 45.6	3 27 13.5	10.33285	9.43645	-12.471	1.0	16.1	-9.2	187.5	3.0	197.7	25.8W
MAY 2	0 55 37.7	3 32 26.3	10.31801	9.43587	-13.240	1.0	16.1	-9.3	8.9	2.9	197.8	27.5W
MAY 4	0 56 29.4	3 37 34.8	10.30227	9.43530	-13.999	1.0	16.1	-9.4	190.4	2.9	197.8	29.2W
MAY 6	0 57 20.5	3 42 39.1	10.28567	9.43472	-14.746	1.0	16.2	-9.5	11.8	2.9	197.9	30.9W
MAY 8	0 58 11.1	3 47 38.9	10.26822	9.43414	-15.479	1.0	16.2	-9.6	193.3	2.9	198.0	32.7W
MAY 10	0 59 1.1	3 52 34.0	10.24992	9.43357	-16.197	1.0	16.2	-9.7	14.8	2.9	198.0	34.4W
MAY 12	0 59 50.5	3 57 24.3	10.23081	9.43299	-16.898	1.0	16.2	-9.8	196.2	2.8	198.1	36.1W
MAY 14	1 0 39.3	4 2 9.4	10.21089	9.43242	-17.583	1.0	16.3	-9.9	17.7	2.8	198.2	37.8W
MAY 16	1 1 27.3	4 6 49.2	10.19020	9.43184	-18.250	1.0	16.3	-10.0	199.2	2.8	198.2	39.5W
MAY 18	1 2 14.7	4 11 23.6	10.16874	9.43127	-18.901	1.0	16.3	-10.0	20.7	2.8	198.3	41.2W
MAY 20	1 3 1.4	4 15 52.5	10.14654	9.43069	-19.535	1.0	16.4	-10.1	202.2	2.8	198.4	42.9W
MAY 22	1 3 47.3	4 20 15.6	10.12362	9.43012	-20.152	1.0	16.4	-10.2	23.7	2.7	198.4	44.6W
MAY 24	1 4 32.5	4 24 33.0	10.09999	9.42954	-20.754	1.0	16.5	-10.3	205.2	2.7	198.5	46.4W
MAY 26	1 5 16.8	4 28 44.3	10.07568	9.42897	-21.340	1.0	16.5	-10.4	26.7	2.7	198.6	48.1W
MAY 28	1 6 0.4	4 32 49.5	10.05070	9.42839	-21.910	1.0	16.5	-10.4	208.2	2.7	198.7	49.8W
MAY 30	1 6 43.0	4 36 48.2	10.02507	9.42782	-22.464	1.0	16.6	-10.5	29.8	2.7	198.7	51.5W
JUN 1	1 7 24.7	4 40 40.4	9.99881	9.42725	-22.999	1.0	16.6	-10.6	211.3	2.6	198.8	53.3W
JUN 3	1 8 5.5	4 44 25.9	9.97195	9.42667	-23.515	1.0	16.7	-10.7	32.9	2.6	198.9	55.0W
JUN 5	1 8 45.4	4 48 4.6	9.94450	9.42610	-24.008	1.0	16.7	-10.7	214.4	2.6	198.9	56.7W
JUN 7	1 9 24.2	4 51 36.3	9.91650	9.42552	-24.478	1.0	16.8	-10.8	36.0	2.6	199.0	58.5W
JUN 9	1 10 2.1	4 55 0.8	9.88796	9.42495	-24.924	1.0	16.8	-10.9	217.5	2.6	199.1	60.2W
JUN 11	1 10 38.8	4 58 18.0	9.85893	9.42438	-25.345	1.0	16.9	-10.9	39.1	2.6	199.1	62.0W
JUN 13	1 11 14.5	5 1 27.7	9.82942	9.42380	-25.742	1.0	16.9	-11.0	220.7	2.5	199.2	63.7W
JUN 15	1 11 49.1	5 4 29.7	9.79947	9.42323	-26.115	1.0	17.0	-11.0	42.3	2.5	199.3	65.5W
JUN 17	1 12 22.5	5 7 24.1	9.76910	9.42266	-26.464	0.9	17.0	-11.1	223.9	2.5	199.3	67.2W
JUN 19	1 12 54.8	5 10 10.7	9.73834	9.42208	-26.789	0.9	17.1	-11.1	45.5	2.5	199.4	69.0W
JUN 21	1 13 25.9	5 12 49.4	9.70722	9.42151	-27.092	0.9	17.1	-11.2	227.1	2.5	199.5	70.8W
JUN 23	1 13 55.8	5 15 20.2	9.67576	9.42094	-27.371	0.9	17.2	-11.2	48.7			

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 1	1 15 42.8	5 23 60.0	9.54711	9.41865	-28.250	0.9	17.4	-11.4	55.2	2.4	199.8	79.7W	
JUL 3	1 16 6.2	5 25 48.7	9.51439	9.41807	-28.401	0.9	17.5	-11.4	236.8	2.4	199.9	81.5W	
JUL 5	1 16 28.4	5 27 28.6	9.48151	9.41750	-28.522	0.9	17.5	-11.5	58.5	2.4	200.0	83.3W	
JUL 7	1 16 49.1	5 28 59.8	9.44851	9.41693	-28.613	0.9	17.6	-11.5	240.1	2.4	200.0	85.1W	
JUL 9	1 17 8.4	5 30 22.0	9.41542	9.41636	-28.673	0.9	17.7	-11.5	61.8	2.4	200.1	87.0W	
JUL 11	1 17 26.2	5 31 35.1	9.38228	9.41579	-28.702	0.9	17.7	-11.5	243.5	2.4	200.2	88.8W	
JUL 13	1 17 42.7	5 32 39.3	9.34913	9.41522	-28.702	0.9	17.8	-11.6	65.1	2.4	200.2	90.6W	
JUL 15	1 17 57.6	5 33 34.4	9.31599	9.41465	-28.671	0.8	17.8	-11.6	246.8	2.4	200.3	92.5W	
JUL 17	1 18 11.2	5 34 20.4	9.28290	9.41407	-28.612	0.8	17.9	-11.6	68.5	2.4	200.4	94.3W	
JUL 19	1 18 23.2	5 34 57.3	9.24990	9.41350	-28.524	0.8	18.0	-11.6	250.2	2.4	200.4	96.2W	
JUL 21	1 18 33.8	5 35 25.2	9.21702	9.41293	-28.408	0.8	18.0	-11.6	71.9	2.4	200.5	98.0W	
JUL 23	1 18 42.8	5 35 43.8	9.18428	9.41236	-28.265	0.8	18.1	-11.6	253.6	2.3	200.6	99.9W	
JUL 25	1 18 50.3	5 35 53.1	9.15173	9.41179	-28.093	0.8	18.2	-11.6	75.3	2.3	200.6	101.8W	
JUL 27	1 18 56.3	5 35 53.2	9.11939	9.41122	-27.891	0.8	18.2	-11.6	257.0	2.3	200.7	103.7W	
JUL 29	1 19 0.8	5 35 44.1	9.08731	9.41065	-27.656	0.8	18.3	-11.6	78.7	2.3	200.8	105.6W	
JUL 31	1 19 3.8	5 35 25.8	9.05552	9.41008	-27.387	0.8	18.4	-11.6	260.5	2.3	200.8	107.5W	
AUG 2	1 19 5.1	5 34 58.3	9.02405	9.40951	-27.085	0.8	18.4	-11.6	82.2	2.3	200.9	109.4W	
AUG 4	1 19 5.0	5 34 21.6	8.99296	9.40894	-26.749	0.8	18.5	-11.6	263.9	2.3	201.0	111.3W	
AUG 6	1 19 3.2	5 33 35.7	8.96227	9.40837	-26.380	0.7	18.5	-11.6	85.7	2.3	201.1	113.2W	
AUG 8	1 18 59.9	5 32 40.8	8.93202	9.40780	-25.978	0.7	18.6	-11.6	267.4	2.3	201.1	115.1W	
AUG 10	1 18 55.1	5 31 36.9	8.90226	9.40723	-25.544	0.7	18.7	-11.6	89.1	2.3	201.2	117.1W	
AUG 12	1 18 48.8	5 30 24.2	8.87302	9.40666	-25.078	0.7	18.7	-11.5	270.9	2.3	201.3	119.0W	
AUG 14	1 18 41.0	5 29 2.8	8.84434	9.40610	-24.583	0.7	18.8	-11.5	92.7	2.3	201.3	121.0W	
AUG 16	1 18 31.7	5 27 32.9	8.81624	9.40553	-24.059	0.7	18.9	-11.5	274.4	2.4	201.4	122.9W	
AUG 18	1 18 20.9	5 25 54.6	8.78877	9.40496	-23.507	0.7	18.9	-11.5	96.2	2.4	201.5	124.9W	
AUG 20	1 18 8.6	5 24 7.9	8.76194	9.40439	-22.928	0.7	19.0	-11.4	277.9	2.4	201.5	126.9W	
AUG 22	1 17 54.9	5 22 13.1	8.73581	9.40382	-22.321	0.7	19.0	-11.4	99.7	2.4	201.6	128.9W	
AUG 24	1 17 39.8	5 20 10.3	8.71039	9.40325	-21.684	0.6	19.1	-11.4	281.5	2.4	201.7	130.9W	
AUG 26	1 17 23.2	5 17 59.8	8.68572	9.40269	-21.017	0.6	19.1	-11.3	103.2	2.4	201.7	132.9W	
AUG 28	1 17 5.4	5 15 41.7	8.66184	9.40212	-20.319	0.6	19.2	-11.3	285.0	2.4	201.8	134.9W	
AUG 30	1 16 46.1	5 13 16.3	8.63879	9.40155	-19.590	0.6	19.2	-11.2	106.8	2.4	201.9	136.9W	
SEP 1	1 16 25.6	5 10 43.8	8.61660	9.40098	-18.833	0.6	19.3	-11.2	288.6	2.4	202.0	138.9W	
SEP 3	1 16 3.8	5 8 4.3	8.59529	9.40042	-18.047	0.6	19.3	-11.1	110.3	2.4	202.0	141.0W	
SEP 5	1 15 40.7	5 5 18.4	8.57491	9.39985	-17.234	0.6	19.4	-11.1	292.1	2.4	202.1	143.0W	
SEP 7	1 15 16.5	5 2 26.2	8.55549	9.39928	-16.396	0.6	19.4	-11.0	113.9	2.4	202.2	145.0W	
SEP 9	1 14 51.2	4 59 28.2	8.53704	9.39872	-15.535	0.6	19.5	-11.0	295.7	2.4	202.2	147.1W	
SEP 11	1 14 24.7	4 56 24.8	8.51960	9.39815	-14.653	0.5	19.5	-10.9	117.5	2.5	202.3	149.2W	
SEP 13	1 13 57.3	4 53 16.2	8.50319	9.39758	-13.751	0.5	19.5	-10.9	299.2	2.5	202.4	151.2W	
SEP 15	1 13 28.9	4 50 2.9	8.48784	9.39702	-12.831	0.5	19.6	-10.8	121.0	2.5	202.4	153.3W	
SEP 17	1 12 59.6	4 46 45.0	8.47356	9.39645	-11.894	0.5	19.6	-10.7	302.8	2.5	202.5	155.3W	
SEP 19	1 12 29.5	4 43 23.1	8.46037	9.39588	-10.940	0.5	19.6	-10.7	124.6	2.5	202.6	157.4W	
SEP 21	1 11 58.5	4 39 57.5	8.44829	9.39532	-9.968	0.5	19.7	-10.6	306.3	2.5	202.6	159.5W	
SEP 23	1 11 26.9	4 36 28.8	8.43734	9.39475	-8.978	0.5	19.7	-10.6	128.1	2.5	202.7	161.6W	
SEP 25	1 10 54.5	4 32 57.2	8.42755	9.39419	-7.971	0.5	19.7	-10.5	309.9	2.5	202.8	163.7W	
SEP 27	1 10 21.6	4 29 23.1	8.41893	9.39362	-6.949	0.5	19.7	-10.4	131.6	2.6	202.8	165.7W	
SEP 29	1 9 48.1	4 25 47.1	8.41150	9.39306	-5.913	0.4	19.8	-10.4	313.4	2.6	202.9	167.8W	
OCT 1	1 9 14.1	4 22 9.5	8.40527	9.39249	-4.866	0.4	19.8	-10.3	135.2	2.6	203.0	169.8W	
OCT 3	1 8 39.8	4 18 30.9	8.40026	9.39193	-3.810	0.4	19.8	-10.2	316.9	2.6	203.1	171.9W	
OCT 5	1 8 5.1	4 14 51.8	8.39647	9.39136	-2.746	0.4	19.8	-10.2	138.7	2.6	203.1	173.8W	
OCT 7	1 7 30.3	4 11 12.8	8.39391	9.39080	-1.678	0.4	19.8	-10.1	320.4	2.6	203.2	175.6W	
OCT 9	1 6 55.3	4 7 34.2	8.39259	9.39024	-0.609	0.4	19.8	-10.0	142.1	2.6	203.3	177.0W	
OCT 11	1 6 20.2	4 3 56.6	8.39250	9.38967	0.461	0.4	19.8	-10.0	323.9	2.7	203.3	177.1W	
OCT 13	1 5 45.1	4 0 20.5	8.39365	9.38911	1.527	0.4	19.8	-9.9	145.6	2.7	203.4	175.9E	
OCT 15	1 5 10.1	3 56 46.1	8.39603	9.38854	2.591	0.4	19.8	-9.8	327.3	2.7	203.5	174.2E	
OCT 17	1 4 35.3	3 53 14.1	8.39963	9.38798	3.651	0.4	19.8	-9.8	149.0	2.7	203.5	172.2E	
OCT 19	1 4 0.7	3 49 45.0	8.40446	9.38742	4.707	0.5	19.8	-9.7	330.7	2.7	203.6	170.2E	
OCT 21	1 3 26.4	3 46 19.2	8.41050	9.38685	5.760	0.5	19.8	-9.6	152.4	2.7	203.7	168.1E	
OCT 23	1 2 52.5	3 42 57.0	8.41776	9.38629	6.808	0.5	19.7	-9.6	334.1	2.7	203.7	166.0E	
OCT 25	1 2 19.1	3 39 39.0	8.42622	9.38573	7.848	0.5	19.7	-9.5	155.8	2.8	203.8	163.9E	
OCT 27	1 1 46.1	3 36 25.6	8.43588	9.38517	8.879	0.5	19.7	-9.4	337.5	2.8	203.9	161.8E	
OCT 29	1 1 13.7	3 33 17.2	8.44672	9.38460	9.898	0.5	19.7	-9.4	159.2	2.8	204.0	159.7E	
OCT 31	1 0 42.1	3 30 14.3	8.45874	9.38404	10.904	0.5	19.6	-9.3	340.8	2.8	204.0	157.6E	
NOV 2	1 0 11.1	3 27 17.4	8.47190	9.38348	11.893	0.6	19.6	-9.3	162.5	2.8	204.1	155.4E	
NOV 4	0 59 41.0	3 24 26.9	8.48620	9.38292	12.863	0.6	19.6	-9.2	344.1	2.8	204.2	153.3E	
NOV 6	0 59 11.8	3 21 43.1	8.50161	9.38236	13.812	0.6	19.5	-9.2	165.8	2.8	204.2	151.2E	
NOV 8	0 58 43.6	3 19 6.5	8.51810	9.38179	14.739	0.6	19.5	-9.1	347.4	2.9	204.3	149.1E	
NOV 10	0 58 16.3	3 16 37.3	8.53565	9.38123	15.641	0.6	19.5	-9.1	169.0	2.9	204.4	147.0E	
NOV 12	0 57 50.1	3 14 15.7	8.55422	9.38067	16.519	0.6	19.4	-9.0	350.6	2.9	204.4	144.8E	
NOV 14	0 57 25.1	3 12 2.2	8.57380	9.38011	17.373	0.6	19.4	-9.0	172.2	2.9	204.5	142.7E	
NOV 16	0 57 1.2	3 9 57.2	8.59434	9.37955	18.203	0.7	19.3	-8.9	353.8	2.9	204.6	140.6E	
NOV 18	0 56 38.5	3 8 0.7	8.61584	9.37899	19.010	0.7	19.3	-8.9	175.4	2.9	204.6	138.5E	
NOV 20	0 56 17.0	3 6 13.1	8.63825	9.37843	19.792	0.7	19.2	-8.9	357.0	2.9	204.7	136.4E	
NOV 22	0 55 56.9	3 4 34.5	8.66155	9.37787	20.547	0.7	19.2	-8.8	178.5	2.9	204.8	134.3E	
NOV 24	0 55 38.1	3 3 5.1	8.68570	9.37731	21.275	0.7	19.1	-8.8	0.1	2.9	204.9	132.2E	
NOV 26	0 55 20.7	3 1 45.2	8.71068	9.37675	21.973	0.7	19.1	-8.8	181.6	2.9	204.9	130.1E	
NOV 28	0 55 4.7	3 0 35.1	8.73645	9.37619	22.641	0.7	19.0	-8.8	3.2	2.9	205.0	128.0E	
NOV 30	0 54 50.2	2 59 34.9	8.76297	9.37563	23.275	0.7	19.0	-8.7	184.7	2.9	205.1	125.9E	
DEC 2	0 54 37.2	2 58 44.8	8.79021	9.37507	23.876	0.8	18.9	-8.7	6.2	3.0	205.1	123.8E	
DEC 4	0 54 25.7	2 58 4.8	8.81812	9.37451	24.440	0.8	18.8	-8.7	187.7	3.0	205.2	121.8E	
DEC 6	0 54 15.8	2 57 35.1	8.84666	9.37395	24.969	0.8	18.8	-8.7	9.2	3.0	205.3	119.7E	
DEC 8	0 54 7.4	2 57 15.6	8.87578	9.37339	25.462	0.8	18.7	-8.7	190.7	3.0	205.3	117.6E	
DEC 10	0 54 0.6	2 57 6.5	8.90546	9.37284	25.919	0.8	18.7	-8.7	12.2	3.0	205.4	115.6E	
DEC 12	0 53 55.4	2 57 7.8	8.93565	9.37228	26.342	0.8	18.6	-8.7	193.6	3.0	205.5	113.5E	
DEC 14	0 53 51.9	2 57 19.5	8.96630	9.37172	26.732	0.8	18.5	-8.7	15.1	3.0	205.6	111.5E	
DEC 16	0 53 49.9	2 57 41.7	8.99739	9.37116	27.089	0.8	18.5	-8.7	196.5	3.0	205.6	109.5E	
DEC 18	0 53 49.5	2 58 14.1	9.02887	9.37060	27.414	0.9	18.4	-8.7	18.0	3.0	205.7	107.4E	
DEC 20	0 53 50.7	2 58 56.9	9										

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	0 54 32.2	3 6 48.4	9.25695	9.36671	28.708	0.9	18.0	-8.9	207.9	3.0	206.2	93.4E	
JAN 3	0 54 44.7	3 8 42.1	9.29014	9.36615	28.746	0.9	17.9	-8.9	29.2	3.0	206.2	91.4E	
JAN 5	0 54 58.8	3 10 45.3	9.32334	9.36559	28.748	0.9	17.8	-8.9	210.6	2.9	206.3	89.5E	
JAN 7	0 55 14.5	3 12 58.2	9.35654	9.36504	28.716	0.9	17.8	-9.0	32.0	2.9	206.4	87.5E	
JAN 9	0 55 31.8	3 15 20.4	9.38967	9.36448	28.651	0.9	17.7	-9.0	213.3	2.9	206.5	85.5E	
JAN 11	0 55 50.5	3 17 51.8	9.42271	9.36393	28.556	0.9	17.6	-9.1	34.7	2.9	206.5	83.6E	
JAN 13	0 56 10.8	3 20 32.3	9.45563	9.36337	28.430	0.9	17.6	-9.1	216.1	2.9	206.6	81.6E	
JAN 15	0 56 32.5	3 23 21.6	9.48838	9.36282	28.275	0.9	17.5	-9.2	37.4	2.9	206.7	79.7E	
JAN 17	0 56 55.7	3 26 19.4	9.52094	9.36226	28.090	1.0	17.5	-9.2	218.7	2.9	206.7	77.8E	
JAN 19	0 57 20.3	3 29 25.7	9.55327	9.36171	27.875	1.0	17.4	-9.3	40.1	2.9	206.8	75.9E	
JAN 21	0 57 46.3	3 32 40.2	9.58533	9.36116	27.630	1.0	17.3	-9.3	221.4	2.9	206.9	74.0E	
JAN 23	0 58 13.8	3 36 2.9	9.61709	9.36060	27.355	1.0	17.3	-9.4	42.7	2.9	206.9	72.0E	
JAN 25	0 58 42.5	3 39 33.5	9.64851	9.36005	27.049	1.0	17.2	-9.5	224.1	2.9	207.0	70.1E	
JAN 27	0 59 12.7	3 43 11.9	9.67956	9.35950	26.712	1.0	17.2	-9.5	45.4	2.8	207.1	68.3E	
JAN 29	0 59 44.2	3 46 57.7	9.71021	9.35894	26.344	1.0	17.1	-9.6	226.7	2.8	207.1	66.4E	
JAN 31	1 0 16.9	3 50 50.7	9.74041	9.35839	25.947	1.0	17.1	-9.7	48.0	2.8	207.2	64.5E	
FEB 2	1 0 50.9	3 54 50.7	9.77014	9.35784	25.522	1.0	17.0	-9.7	229.3	2.8	207.3	62.6E	
FEB 4	1 1 26.1	3 58 57.4	9.79937	9.35728	25.072	1.0	17.0	-9.8	50.6	2.8	207.4	60.7E	
FEB 6	1 2 2.4	4 3 10.7	9.82805	9.35673	24.598	1.0	16.9	-9.9	231.9	2.8	207.4	58.9E	
FEB 8	1 2 40.0	4 7 30.3	9.85618	9.35618	24.102	1.0	16.9	-10.0	53.2	2.8	207.5	57.0E	
FEB 10	1 3 18.6	4 11 55.9	9.88373	9.35563	23.585	1.0	16.8	-10.1	234.5	2.7	207.6	55.2E	
FEB 12	1 3 58.4	4 16 27.3	9.91066	9.35508	23.048	1.0	16.8	-10.1	55.8	2.7	207.6	53.4E	
FEB 14	1 4 39.2	4 21 4.1	9.93697	9.35453	22.490	1.0	16.7	-10.2	237.1	2.7	207.7	51.5E	
FEB 16	1 5 21.0	4 25 46.2	9.96261	9.35397	21.912	1.0	16.7	-10.3	58.4	2.7	207.8	49.7E	
FEB 18	1 6 3.7	4 30 33.5	9.98758	9.35342	21.314	1.0	16.6	-10.4	239.7	2.7	207.8	47.9E	
FEB 20	1 6 47.5	4 35 25.7	10.01185	9.35287	20.695	0.9	16.6	-10.5	61.0	2.7	207.9	46.1E	
FEB 22	1 7 32.2	4 40 22.5	10.03538	9.35232	20.056	0.9	16.6	-10.6	242.3	2.6	208.0	44.2E	
FEB 24	1 8 17.8	4 45 23.8	10.05817	9.35177	19.397	0.9	16.5	-10.7	63.6	2.6	208.1	42.4E	
FEB 26	1 9 4.3	4 50 29.3	10.08019	9.35122	18.718	0.9	16.5	-10.8	244.9	2.6	208.1	40.6E	
FEB 28	1 9 51.6	4 55 38.6	10.10141	9.35067	18.020	0.9	16.5	-10.9	66.2	2.6	208.2	38.9E	
MAR 2	1 10 39.6	5 0 51.5	10.12182	9.35012	17.305	0.9	16.4	-11.0	247.5	2.6	208.3	37.1E	
MAR 4	1 11 28.5	5 6 7.9	10.14139	9.34958	16.576	0.9	16.4	-11.1	68.8	2.5	208.3	35.3E	
MAR 6	1 12 18.1	5 11 27.5	10.16011	9.34903	15.836	0.9	16.4	-11.2	250.1	2.5	208.4	33.5E	
MAR 8	1 13 8.3	5 16 50.0	10.17797	9.34848	15.084	0.9	16.3	-11.3	71.3	2.5	208.5	31.7E	
MAR 10	1 13 59.2	5 22 15.2	10.19495	9.34793	14.323	0.9	16.3	-11.4	252.6	2.5	208.5	30.0E	
MAR 12	1 14 50.7	5 27 42.7	10.21105	9.34738	13.552	0.9	16.3	-11.5	73.9	2.5	208.6	28.2E	
MAR 14	1 15 42.8	5 33 12.5	10.22626	9.34683	12.771	0.9	16.3	-11.6	255.2	2.4	208.7	26.5E	
MAR 16	1 16 35.4	5 38 44.2	10.24056	9.34629	11.981	0.9	16.2	-11.7	76.5	2.4	208.8	24.7E	
MAR 18	1 17 28.5	5 44 17.7	10.25394	9.34574	11.182	0.9	16.2	-11.8	257.8	2.4	208.8	23.0E	
MAR 20	1 18 22.2	5 49 52.8	10.26639	9.34519	10.373	0.9	16.2	-11.9	79.2	2.4	208.9	21.2E	
MAR 22	1 19 16.3	5 55 29.3	10.27790	9.34464	9.555	0.9	16.2	-12.0	260.5	2.3	209.0	19.5E	
MAR 24	1 20 10.8	6 1 6.9	10.28846	9.34410	8.728	0.8	16.2	-12.1	81.8	2.3	209.0	17.8E	
MAR 26	1 21 5.8	6 6 45.5	10.29806	9.34355	7.892	0.8	16.1	-12.2	263.1	2.3	209.1	16.0E	
MAR 28	1 22 1.0	6 12 24.6	10.30669	9.34301	7.048	0.8	16.1	-12.3	84.4	2.3	209.2	14.3E	
MAR 30	1 22 56.6	6 18 4.2	10.31434	9.34246	6.198	0.8	16.1	-12.4	265.7	2.2	209.2	12.6E	
APR 1	1 23 52.5	6 23 44.1	10.32101	9.34191	5.345	0.8	16.1	-12.5	87.1	2.2	209.3	10.9E	
APR 3	1 24 48.6	6 29 23.9	10.32669	9.34137	4.491	0.8	16.1	-12.6	268.4	2.2	209.4	9.3E	
APR 5	1 25 45.0	6 35 3.6	10.33139	9.34082	3.638	0.8	16.1	-12.7	89.7	2.2	209.5	7.6E	
APR 7	1 26 41.5	6 40 42.8	10.33510	9.34028	2.785	0.8	16.1	-12.8	271.0	2.1	209.5	6.0E	
APR 9	1 27 38.1	6 46 21.3	10.33783	9.33973	1.932	0.8	16.1	-12.9	92.4	2.1	209.6	4.4E	
APR 11	1 28 34.9	6 51 58.9	10.33957	9.33919	1.080	0.8	16.1	-13.0	273.7	2.1	209.7	3.1E	
APR 13	1 29 31.8	6 57 35.4	10.34032	9.33865	0.229	0.7	16.1	-13.1	95.1	2.1	209.7	2.3E	
APR 15	1 30 28.7	7 3 10.8	10.34010	9.33810	-0.621	0.7	16.1	-13.2	276.4	2.0	209.8	2.6W	
APR 17	1 31 25.6	7 8 44.8	10.33889	9.33756	-1.471	0.7	16.1	-13.3	97.8	2.0	209.9	3.7W	
APR 19	1 32 22.6	7 14 17.3	10.33670	9.33701	-2.320	0.7	16.1	-13.4	279.1	2.0	209.9	5.2W	
APR 21	1 33 19.5	7 19 48.0	10.33353	9.33647	-3.169	0.8	16.1	-13.5	100.5	2.0	210.0	6.8W	
APR 23	1 34 16.3	7 25 16.7	10.32938	9.33593	-4.017	0.8	16.1	-13.6	281.9	1.9	210.1	8.4W	
APR 25	1 35 13.0	7 30 43.1	10.32426	9.33539	-4.863	0.8	16.1	-13.7	103.2	1.9	210.2	10.0W	
APR 27	1 36 9.6	7 36 7.2	10.31815	9.33484	-5.704	0.8	16.1	-13.8	284.6	1.9	210.2	11.7W	
APR 29	1 37 6.1	7 41 28.8	10.31108	9.33430	-6.539	0.8	16.1	-13.9	106.0	1.9	210.3	13.4W	
MAY 1	1 38 2.3	7 46 47.7	10.30305	9.33376	-7.365	0.8	16.1	-14.0	287.4	1.8	210.4	15.0W	
MAY 3	1 38 58.3	7 52 3.6	10.29408	9.33322	-8.182	0.8	16.1	-14.1	108.8	1.8	210.4	16.7W	
MAY 5	1 39 54.0	7 57 16.3	10.28416	9.33268	-8.989	0.8	16.2	-14.2	290.2	1.8	210.5	18.4W	
MAY 7	1 40 49.3	8 2 25.6	10.27331	9.33214	-9.786	0.8	16.2	-14.3	111.6	1.8	210.6	20.1W	
MAY 9	1 41 44.4	8 7 31.5	10.26156	9.33160	-10.574	0.8	16.2	-14.4	293.0	1.7	210.6	21.8W	
MAY 11	1 42 39.0	8 12 33.7	10.24889	9.33106	-11.352	0.8	16.2	-14.4	114.4	1.7	210.7	23.4W	
MAY 13	1 43 33.3	8 17 32.2	10.23534	9.33052	-12.121	0.8	16.2	-14.5	295.8	1.7	210.8	25.1W	
MAY 15	1 44 27.2	8 22 26.9	10.22090	9.32998	-12.881	0.8	16.3	-14.6	117.3	1.7	210.9	26.8W	
MAY 17	1 45 20.6	8 27 17.4	10.20558	9.32944	-13.632	0.8	16.3	-14.7	298.7	1.6	210.9	28.5W	
MAY 19	1 46 13.6	8 32 3.7	10.18941	9.32890	-14.373	0.8	16.3	-14.8	120.1	1.6	211.0	30.2W	
MAY 21	1 47 6.0	8 36 45.6	10.17239	9.32836	-15.105	0.8	16.3	-14.9	301.6	1.6	211.1	31.9W	
MAY 23	1 47 57.8	8 41 22.8	10.15452	9.32782	-15.826	0.8	16.4	-15.0	123.0	1.6	211.1	33.6W	
MAY 25	1 48 49.1	8 45 55.3	10.13583	9.32728	-16.534	0.8	16.4	-15.0	304.5	1.5	211.2	35.3W	
MAY 27	1 49 39.7	8 50 23.0	10.11633	9.32674	-17.227	0.8	16.4	-15.1	126.0	1.5	211.3	37.0W	
MAY 29	1 50 29.7	8 54 45.6	10.09604	9.32620	-17.902	0.8	16.5	-15.2	307.4	1.5	211.3	38.7W	
MAY 31	1 51 19.0	8 59 3.0	10.07498	9.32567	-18.560	0.8	16.5	-15.3	128.9	1.5	211.4	40.4W	
JUN 2	1 52 7.6	9 3 14.9	10.05317	9.32513	-19.200	0.8	16.5	-15.4	310.4	1.5	211.5	42.1W	
JUN 4	1 52 55.4	9 7 21.3	10.03064	9.32459	-19.823	0.8	16.6	-15.4	131.9	1.4	211.6	43.8W	
JUN 6	1 53 42.4	9 11 21.9	10.00739	9.32406	-20.427	0.8	16.6	-15.5	313.4	1.4	211.6	45.5W	
JUN 8	1 54 28.6	9 15 16.8	9.98345	9.32352	-21.015	0.8	16.6	-15.6	134.9	1.4	211.7	47.2W	
JUN 10	1 55 14.0	9 19 5.9	9.95885	9.32298	-21.585	0.8	16.7	-15.6	316.4	1.4	211.8	48.9W	
JUN 12	1 55 58.5	9 22 48.9	9.93360	9.32245	-22.139	0.8	16.7	-15.7	137.9	1.3	211.8	50.6W	
JUN 14	1 56 42.1	9 26 25.9	9.90771	9.32191	-22.675	0.8	16.8	-15.8	319.5	1.3	211.9	52.3W	
JUN 16	1 57 24.7	9 29 56.5	9.88122	9.32138	-23.195	0.8	16.8	-15.8	141.0	1.3	212.0	54.1W	
JUN 18	1 58 6.4	9 33 20.7	9.85414	9.32084	-23.698	0.8	16.9	-15.9	322.5	1.3	212.0	55.8W	
JUN 20	1 58 47.2	9 36 38.3	9.82648	9.32030	-24.181	0.8	16.9	-16.0	144.1	1.3	212.1	57.5W	
JUN 22	1 59 26.8	9 39 49.2	9.79828	9.31									

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	2 2 28.6	9 53 59.4	9.65005	9.31710	-26.586	0.7	17.2	-16.3	153.5	1.2	212.5	68.0W	
JUL 4	2 3 1.4	9 56 27.6	9.61916	9.31657	-26.899	0.7	17.3	-16.3	335.1	1.1	212.6	69.8W	
JUL 6	2 3 33.0	9 58 48.3	9.58792	9.31603	-27.188	0.7	17.3	-16.3	156.7	1.1	212.7	71.5W	
JUL 8	2 4 3.3	10 1 1.6	9.55636	9.31550	-27.453	0.7	17.4	-16.4	338.3	1.1	212.7	73.3W	
JUL 10	2 4 32.4	10 3 7.3	9.52450	9.31497	-27.694	0.7	17.4	-16.4	159.9	1.1	212.8	75.1W	
JUL 12	2 5 0.1	10 5 5.3	9.49239	9.31444	-27.911	0.7	17.5	-16.5	341.5	1.1	212.9	76.9W	
JUL 14	2 5 26.5	10 6 55.4	9.46003	9.31391	-28.104	0.7	17.6	-16.5	163.1	1.1	213.0	78.7W	
JUL 16	2 5 51.5	10 8 37.6	9.42747	9.31338	-28.272	0.7	17.6	-16.5	344.8	1.1	213.0	80.5W	
JUL 18	2 6 15.1	10 10 11.9	9.39473	9.31284	-28.414	0.7	17.7	-16.5	166.4	1.1	213.1	82.3W	
JUL 20	2 6 37.3	10 11 38.1	9.36184	9.31231	-28.527	0.7	17.8	-16.6	348.1	1.0	213.2	84.1W	
JUL 22	2 6 58.1	10 12 56.3	9.32884	9.31178	-28.610	0.7	17.8	-16.6	169.7	1.0	213.2	85.9W	
JUL 24	2 7 17.4	10 14 6.2	9.29576	9.31125	-28.662	0.7	17.9	-16.6	351.4	1.0	213.3	87.7W	
JUL 26	2 7 35.2	10 15 7.9	9.26264	9.31072	-28.682	0.7	17.9	-16.6	173.0	1.0	213.4	89.6W	
JUL 28	2 7 51.5	10 16 1.2	9.22951	9.31019	-28.670	0.6	18.0	-16.7	354.7	1.0	213.4	91.4W	
JUL 30	2 8 6.2	10 16 46.1	9.19642	9.30966	-28.627	0.6	18.1	-16.7	176.4	1.0	213.5	93.3W	
AUG 1	2 8 19.4	10 17 22.6	9.16339	9.30913	-28.554	0.6	18.1	-16.7	358.1	1.0	213.6	95.1W	
AUG 3	2 8 31.1	10 17 50.8	9.13046	9.30861	-28.450	0.6	18.2	-16.7	179.8	1.0	213.7	97.0W	
AUG 5	2 8 41.2	10 18 10.6	9.09767	9.30808	-28.317	0.6	18.3	-16.7	1.5	1.0	213.7	98.9W	
AUG 7	2 8 49.7	10 18 22.1	9.06506	9.30755	-28.154	0.6	18.3	-16.7	183.2	1.0	213.8	100.7W	
AUG 9	2 8 56.7	10 18 25.3	9.03264	9.30702	-27.964	0.6	18.4	-16.7	4.9	1.0	213.9	102.6W	
AUG 11	2 9 2.0	10 18 20.0	9.00047	9.30649	-27.744	0.6	18.5	-16.7	186.6	1.0	213.9	104.5W	
AUG 13	2 9 5.8	10 18 6.3	8.96856	9.30597	-27.495	0.6	18.5	-16.7	8.3	1.0	214.0	106.4W	
AUG 15	2 9 7.9	10 17 44.2	8.93696	9.30544	-27.214	0.6	18.6	-16.7	190.1	1.0	214.1	108.3W	
AUG 17	2 9 8.5	10 17 13.9	8.90570	9.30491	-26.901	0.6	18.7	-16.7	11.8	1.0	214.2	110.3W	
AUG 19	2 9 7.4	10 16 35.3	8.87482	9.30439	-26.553	0.5	18.7	-16.7	193.5	1.0	214.2	112.2W	
AUG 21	2 9 4.7	10 15 48.4	8.84437	9.30386	-26.171	0.5	18.8	-16.7	15.3	1.0	214.3	114.1W	
AUG 23	2 9 0.4	10 14 53.3	8.81438	9.30333	-25.754	0.5	18.9	-16.6	197.0	1.0	214.4	116.1W	
AUG 25	2 8 54.5	10 13 50.0	8.78489	9.30281	-25.304	0.5	18.9	-16.6	18.8	1.0	214.4	118.0W	
AUG 27	2 8 47.0	10 12 38.7	8.75593	9.30228	-24.821	0.5	19.0	-16.6	200.5	1.0	214.5	120.0W	
AUG 29	2 8 37.9	10 11 19.5	8.72755	9.30176	-24.307	0.5	19.0	-16.6	22.3	1.0	214.6	122.0W	
AUG 31	2 8 27.3	10 9 52.6	8.69979	9.30123	-23.762	0.5	19.1	-16.6	204.0	1.0	214.6	123.9W	
SEP 2	2 8 15.1	10 8 18.1	8.67267	9.30071	-23.187	0.5	19.2	-16.5	25.8	1.0	214.7	125.9W	
SEP 4	2 8 1.4	10 6 36.3	8.64623	9.30019	-22.584	0.5	19.2	-16.5	207.6	1.0	214.8	127.9W	
SEP 6	2 7 46.3	10 4 47.1	8.62050	9.29966	-21.954	0.4	19.3	-16.5	29.3	1.0	214.9	129.9W	
SEP 8	2 7 29.6	10 2 50.8	8.59552	9.29914	-21.297	0.4	19.3	-16.4	211.1	1.0	214.9	131.9W	
SEP 10	2 7 11.6	10 0 47.5	8.57131	9.29861	-20.612	0.4	19.4	-16.4	32.9	1.0	215.0	133.9W	
SEP 12	2 6 52.1	9 58 37.5	8.54791	9.29809	-19.897	0.4	19.4	-16.4	214.7	1.0	215.1	136.0W	
SEP 14	2 6 31.3	9 56 21.0	8.52536	9.29757	-19.154	0.4	19.5	-16.3	36.5	1.0	215.1	138.0W	
SEP 16	2 6 9.1	9 53 58.3	8.50367	9.29705	-18.380	0.4	19.5	-16.3	218.2	1.1	215.2	140.1W	
SEP 18	2 5 45.6	9 51 29.4	8.48290	9.29653	-17.577	0.4	19.6	-16.2	40.0	1.1	215.3	142.1W	
SEP 20	2 5 20.9	9 48 54.6	8.46308	9.29600	-16.747	0.4	19.6	-16.2	221.8	1.1	215.4	144.2W	
SEP 22	2 4 54.9	9 46 14.3	8.44422	9.29548	-15.890	0.3	19.7	-16.1	43.6	1.1	215.4	146.2W	
SEP 24	2 4 27.8	9 43 28.8	8.42637	9.29496	-15.009	0.3	19.7	-16.1	225.4	1.1	215.5	148.3W	
SEP 26	2 3 59.6	9 40 38.4	8.40956	9.29444	-14.105	0.3	19.8	-16.0	47.2	1.1	215.6	150.4W	
SEP 28	2 3 30.4	9 37 43.6	8.39379	9.29392	-13.180	0.3	19.8	-16.0	229.0	1.1	215.6	152.4W	
SEP 30	2 3 0.2	9 34 44.6	8.37911	9.29340	-12.236	0.3	19.8	-15.9	50.7	1.1	215.7	154.5W	
OCT 2	2 2 29.2	9 31 41.8	8.36553	9.29288	-11.276	0.3	19.9	-15.9	232.5	1.2	215.8	156.6W	
OCT 4	2 1 57.2	9 28 35.5	8.35306	9.29236	-10.300	0.3	19.9	-15.8	54.3	1.2	215.8	158.7W	
OCT 6	2 1 24.5	9 25 26.1	8.34174	9.29184	-9.311	0.3	19.9	-15.8	236.1	1.2	215.9	160.8W	
OCT 8	2 0 51.1	9 22 14.0	8.33156	9.29132	-8.307	0.3	19.9	-15.7	57.9	1.2	216.0	162.9W	
OCT 10	2 0 17.1	9 18 59.6	8.32255	9.29080	-7.288	0.2	20.0	-15.7	239.6	1.2	216.1	165.0W	
OCT 12	1 59 42.5	9 15 43.4	8.31472	9.29029	-6.254	0.2	20.0	-15.6	61.4	1.2	216.1	167.1W	
OCT 14	1 59 7.3	9 12 25.6	8.30810	9.28977	-5.207	0.2	20.0	-15.6	243.2	1.3	216.2	169.1W	
OCT 16	1 58 31.8	9 9 6.7	8.30270	9.28925	-4.149	0.2	20.0	-15.5	64.9	1.3	216.3	171.2W	
OCT 18	1 57 55.9	9 5 47.1	8.29852	9.28873	-3.081	0.2	20.0	-15.4	246.7	1.3	216.3	173.2W	
OCT 20	1 57 19.7	9 2 27.2	8.29558	9.28822	-2.005	0.2	20.0	-15.4	68.5	1.3	216.4	175.1W	
OCT 22	1 56 43.4	8 59 7.6	8.29388	9.28770	-0.925	0.2	20.0	-15.3	250.2	1.3	216.5	176.6W	
OCT 24	1 56 7.0	8 55 48.8	8.29344	9.28718	0.157	0.2	20.0	-15.3	71.9	1.3	216.6	177.2W	
OCT 26	1 55 30.6	8 52 31.1	8.29424	9.28667	1.238	0.2	20.0	-15.2	253.7	1.4	216.6	176.4E	
OCT 28	1 54 54.2	8 49 15.2	8.29629	9.28615	2.317	0.2	20.0	-15.1	75.4	1.4	216.7	174.7E	
OCT 30	1 54 18.0	8 46 1.4	8.29959	9.28564	3.391	0.2	20.0	-15.1	257.1	1.4	216.8	172.8E	
NOV 1	1 53 42.0	8 42 50.1	8.30412	9.28512	4.458	0.2	20.0	-15.0	78.9	1.4	216.8	170.7E	
NOV 3	1 53 6.4	8 39 41.7	8.30988	9.28461	5.517	0.2	20.0	-15.0	260.6	1.4	216.9	168.7E	
NOV 5	1 52 31.1	8 36 36.7	8.31686	9.28409	6.568	0.3	20.0	-14.9	82.3	1.4	217.0	166.6E	
NOV 7	1 51 56.4	8 33 35.7	8.32505	9.28358	7.611	0.3	20.0	-14.9	264.0	1.5	217.0	164.4E	
NOV 9	1 51 22.1	8 30 38.8	8.33444	9.28307	8.646	0.3	19.9	-14.8	85.7	1.5	217.1	162.3E	
NOV 11	1 50 48.5	8 27 46.6	8.34502	9.28255	9.671	0.3	19.9	-14.8	267.3	1.5	217.2	160.2E	
NOV 13	1 50 15.5	8 24 59.3	8.35677	9.28204	10.684	0.3	19.9	-14.7	89.0	1.5	217.3	158.0E	
NOV 15	1 49 43.3	8 22 17.4	8.36969	9.28153	11.683	0.3	19.9	-14.7	270.7	1.5	217.3	155.9E	
NOV 17	1 49 11.9	8 19 41.2	8.38375	9.28102	12.665	0.3	19.8	-14.6	92.3	1.5	217.4	153.8E	
NOV 19	1 48 41.5	8 17 11.3	8.39894	9.28050	13.628	0.4	19.8	-14.6	274.0	1.5	217.5	151.6E	
NOV 21	1 48 12.0	8 14 48.0	8.41523	9.27999	14.570	0.4	19.7	-14.5	95.6	1.6	217.5	149.5E	
NOV 23	1 47 43.6	8 12 31.7	8.43259	9.27948	15.489	0.4	19.7	-14.5	277.2	1.6	217.6	147.4E	
NOV 25	1 47 16.3	8 10 22.6	8.45100	9.27897	16.383	0.4	19.7	-14.4	98.9	1.6	217.7	145.2E	
NOV 27	1 46 50.1	8 8 21.1	8.47042	9.27846	17.250	0.4	19.6	-14.4	280.5	1.6	217.8	143.1E	
NOV 29	1 46 25.2	8 6 27.3	8.49083	9.27795	18.089	0.4	19.6	-14.4	102.1	1.6	217.8	141.0E	
DEC 1	1 46 1.5	8 4 41.6	8.51220	9.27744	18.900	0.4	19.5	-14.3	283.6	1.6	217.9	138.9E	
DEC 3	1 45 39.2	8 3 4.2	8.53448	9.27693	19.683	0.4	19.5	-14.3	105.2	1.6	218.0	136.7E	
DEC 5	1 45 18.2	8 1 35.4	8.55766	9.27642	20.440	0.5	19.4	-14.3	286.8	1.6	218.0	134.6E	
DEC 7	1 44 58.6	8 0 15.3	8.58169	9.27591	21.170	0.5	19.4	-14.3	108.4	1.6	218.1	132.5E	
DEC 9	1 44 40.4	7 59 4.1	8.60655	9.27540	21.872	0.5	19.3	-14.2	289.9	1.7	218.2	130.4E	
DEC 11	1 44 23.7	7 58 1.9	8.63221	9.27490	22.545	0.5	19.3	-14.2	111.4	1.7	218.3	128.3E	
DEC 13	1 44 8.5	7 57 8.8	8.65862	9.27439	23.187	0.5	19.2	-14.2	293.0	1.7	218.3	126.2E	
DEC 15	1 43 54.8	7 56 25.1	8.68576	9.27388	23.797	0.5	19.1	-14.2	114.5	1.7	218.4	124.1E	
DEC 17	1 43 42.7	7 55 51.0	8.71358	9.27337	24.373	0.5	19.1	-14.2	296.0	1.7	218.5	122.1E	
DEC 19	1 43 32.2	7 55 26.5	8.74205	9.27287	24.914	0.6	19.0	-14.2	117.5	1.7	218.5	120.0E	
DEC 21	1 43 23.4	7 55											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	1 43 5.0	7 57 8.2	8.95586	9.26933	27.678	0.6	18.6	-14.2	307.7	1.7	219.0	105.6E	
JAN 4	1 43 7.8	7 58 1.7	8.98798	9.26882	27.934	0.6	18.5	-14.2	129.1	1.7	219.1	103.6E	
JAN 6	1 43 12.3	7 59 4.8	9.02038	9.26832	28.157	0.6	18.4	-14.2	310.6	1.7	219.2	101.6E	
JAN 8	1 43 18.4	8 0 17.3	9.05302	9.26782	28.347	0.7	18.4	-14.2	132.0	1.7	219.3	99.6E	
JAN 10	1 43 26.2	8 1 39.2	9.08585	9.26731	28.502	0.7	18.3	-14.3	313.4	1.7	219.3	97.6E	
JAN 12	1 43 35.7	8 3 10.4	9.11885	9.26681	28.622	0.7	18.2	-14.3	134.8	1.7	219.4	95.6E	
JAN 14	1 43 46.8	8 4 51.0	9.15196	9.26631	28.707	0.7	18.2	-14.3	316.2	1.7	219.5	93.6E	
JAN 16	1 43 59.5	8 6 40.8	9.18515	9.26581	28.756	0.7	18.1	-14.4	137.5	1.7	219.5	91.7E	
JAN 18	1 44 13.9	8 8 39.6	9.21838	9.26531	28.768	0.7	18.0	-14.4	318.9	1.7	219.6	89.7E	
JAN 20	1 44 30.0	8 10 47.3	9.25160	9.26480	28.744	0.7	18.0	-14.4	140.3	1.7	219.7	87.7E	
JAN 22	1 44 47.6	8 13 3.7	9.28477	9.26430	28.684	0.7	17.9	-14.5	321.6	1.7	219.7	85.8E	
JAN 24	1 45 6.8	8 15 28.5	9.31785	9.26380	28.590	0.7	17.8	-14.5	143.0	1.6	219.8	83.8E	
JAN 26	1 45 27.5	8 18 1.8	9.35081	9.26330	28.463	0.7	17.8	-14.6	324.3	1.6	219.9	81.9E	
JAN 28	1 45 49.8	8 20 43.3	9.38360	9.26280	28.306	0.7	17.7	-14.6	145.7	1.6	220.0	80.0E	
JAN 30	1 46 13.6	8 23 32.8	9.41619	9.26230	28.119	0.7	17.6	-14.7	327.0	1.6	220.0	78.0E	
FEB 1	1 46 38.9	8 26 30.0	9.44855	9.26180	27.904	0.7	17.6	-14.7	148.3	1.6	220.1	76.1E	
FEB 3	1 47 5.6	8 29 34.7	9.48064	9.26130	27.662	0.7	17.5	-14.8	329.7	1.6	220.2	74.2E	
FEB 5	1 47 33.7	8 32 46.7	9.51244	9.26081	27.392	0.7	17.5	-14.8	151.0	1.6	220.2	72.3E	
FEB 7	1 48 3.3	8 36 5.8	9.54391	9.26031	27.094	0.7	17.4	-14.9	332.3	1.6	220.3	70.4E	
FEB 9	1 48 34.2	8 39 31.9	9.57502	9.25981	26.767	0.7	17.4	-14.9	153.6	1.6	220.4	68.5E	
FEB 11	1 49 6.5	8 43 4.8	9.60574	9.25931	26.412	0.7	17.3	-15.0	334.9	1.5	220.5	66.7E	
FEB 13	1 49 40.1	8 46 44.4	9.63603	9.25882	26.028	0.7	17.2	-15.1	156.2	1.5	220.5	64.8E	
FEB 15	1 50 15.0	8 50 30.2	9.66586	9.25832	25.616	0.7	17.2	-15.1	337.5	1.5	220.6	62.9E	
FEB 17	1 50 51.2	8 54 22.2	9.69520	9.25782	25.176	0.7	17.1	-15.2	158.8	1.5	220.7	61.1E	
FEB 19	1 51 28.6	8 58 19.9	9.72401	9.25733	24.709	0.7	17.1	-15.3	340.1	1.5	220.7	59.2E	
FEB 21	1 52 7.2	9 2 23.3	9.75227	9.25683	24.217	0.7	17.0	-15.3	161.4	1.5	220.8	57.4E	
FEB 23	1 52 47.0	9 6 32.0	9.77995	9.25634	23.702	0.7	17.0	-15.4	342.7	1.4	220.9	55.6E	
FEB 25	1 53 27.9	9 10 46.0	9.80702	9.25584	23.166	0.7	16.9	-15.5	164.0	1.4	221.0	53.7E	
FEB 27	1 54 9.9	9 15 4.8	9.83346	9.25535	22.611	0.7	16.9	-15.6	345.3	1.4	221.0	51.9E	
MAR 1	1 54 53.0	9 19 28.3	9.85925	9.25485	22.038	0.7	16.9	-15.6	166.6	1.4	221.1	50.1E	
MAR 3	1 55 37.0	9 23 56.1	9.88437	9.25436	21.447	0.7	16.8	-15.7	347.8	1.4	221.2	48.3E	
MAR 5	1 56 22.1	9 28 28.0	9.90879	9.25387	20.839	0.7	16.8	-15.8	169.1	1.3	221.2	46.5E	
MAR 7	1 57 8.1	9 33 3.9	9.93251	9.25337	20.212	0.7	16.7	-15.9	350.4	1.3	221.3	44.7E	
MAR 9	1 57 55.1	9 37 43.5	9.95548	9.25288	19.567	0.7	16.7	-16.0	171.7	1.3	221.4	42.9E	
MAR 11	1 58 43.0	9 42 26.7	9.97770	9.25239	18.904	0.7	16.7	-16.0	353.0	1.3	221.5	41.1E	
MAR 13	1 59 31.7	9 47 13.3	9.99915	9.25189	18.224	0.7	16.6	-16.1	174.3	1.2	221.5	39.3E	
MAR 15	2 0 21.3	9 52 2.9	10.01980	9.25140	17.526	0.7	16.6	-16.2	355.5	1.2	221.6	37.6E	
MAR 17	2 1 11.6	9 56 55.3	10.03963	9.25091	16.810	0.7	16.6	-16.3	176.8	1.2	221.7	35.8E	
MAR 19	2 2 2.8	10 1 50.3	10.05863	9.25042	16.079	0.7	16.5	-16.4	358.1	1.2	221.7	34.0E	
MAR 21	2 2 54.6	10 6 47.7	10.07678	9.24993	15.334	0.7	16.5	-16.5	179.4	1.2	221.8	32.3E	
MAR 23	2 3 47.2	10 11 47.2	10.09405	9.24944	14.577	0.7	16.5	-16.6	0.7	1.1	221.9	30.5E	
MAR 25	2 4 40.4	10 16 48.7	10.11045	9.24895	13.811	0.7	16.4	-16.7	181.9	1.1	222.0	28.8E	
MAR 27	2 5 34.2	10 21 51.9	10.12596	9.24846	13.036	0.7	16.4	-16.7	3.2	1.1	222.0	27.0E	
MAR 29	2 6 28.6	10 26 56.4	10.14057	9.24797	12.254	0.7	16.4	-16.8	184.5	1.0	222.1	25.3E	
MAR 31	2 7 23.6	10 32 2.2	10.15427	9.24748	11.465	0.7	16.4	-16.9	5.8	1.0	222.2	23.6E	
APR 2	2 8 19.0	10 37 8.9	10.16705	9.24700	10.669	0.7	16.3	-17.0	187.1	1.0	222.2	21.8E	
APR 4	2 9 14.9	10 42 16.4	10.17891	9.24651	9.865	0.7	16.3	-17.1	8.4	1.0	222.3	20.1E	
APR 6	2 10 11.3	10 47 24.6	10.18984	9.24602	9.053	0.6	16.3	-17.2	189.7	0.9	222.4	18.4E	
APR 8	2 11 8.2	10 52 33.3	10.19983	9.24553	8.234	0.6	16.3	-17.3	11.0	0.9	222.5	16.7E	
APR 10	2 12 5.4	10 57 42.3	10.20886	9.24505	7.408	0.6	16.3	-17.4	192.3	0.9	222.5	15.0E	
APR 12	2 13 2.9	11 2 51.3	10.21694	9.24456	6.575	0.6	16.3	-17.5	13.6	0.9	222.6	13.3E	
APR 14	2 14 0.8	11 8 0.2	10.22405	9.24407	5.734	0.6	16.3	-17.5	194.9	0.8	222.7	11.6E	
APR 16	2 14 59.0	11 13 8.7	10.23019	9.24359	4.889	0.6	16.2	-17.6	16.2	0.8	222.7	10.0E	
APR 18	2 15 57.4	11 18 16.6	10.23535	9.24310	4.039	0.6	16.2	-17.7	197.5	0.8	222.8	8.3E	
APR 20	2 16 56.0	11 23 23.8	10.23952	9.24262	3.189	0.6	16.2	-17.8	18.9	0.7	222.9	6.7E	
APR 22	2 17 54.9	11 28 30.2	10.24272	9.24213	2.340	0.6	16.2	-17.9	200.2	0.7	223.0	5.1E	
APR 24	2 18 53.8	11 33 35.4	10.24493	9.24165	1.492	0.6	16.2	-18.0	21.5	0.7	223.0	3.7E	
APR 26	2 19 52.9	11 38 39.2	10.24617	9.24117	0.647	0.6	16.2	-18.1	202.8	0.7	223.1	2.5E	
APR 28	2 20 52.0	11 43 41.4	10.24643	9.24068	-0.196	0.6	16.2	-18.2	24.2	0.6	223.2	2.2E	
APR 30	2 21 51.2	11 48 41.9	10.24572	9.24020	-1.036	0.6	16.2	-18.2	205.5	0.6	223.2	3.1W	
MAY 2	2 22 50.3	11 53 40.6	10.24404	9.23972	-1.875	0.6	16.2	-18.3	26.8	0.6	223.3	4.4W	
MAY 4	2 23 49.5	11 58 37.4	10.24139	9.23924	-2.712	0.6	16.2	-18.4	208.2	0.5	223.4	5.9W	
MAY 6	2 24 48.7	12 3 32.1	10.23778	9.23875	-3.547	0.6	16.2	-18.5	29.5	0.5	223.5	7.5W	
MAY 8	2 25 47.7	12 8 24.6	10.23320	9.23827	-4.380	0.6	16.2	-18.6	210.9	0.5	223.5	9.1W	
MAY 10	2 26 46.6	12 13 14.6	10.22766	9.23779	-5.211	0.6	16.2	-18.7	32.3	0.5	223.6	10.8W	
MAY 12	2 27 45.4	12 18 1.9	10.22116	9.23731	-6.040	0.6	16.3	-18.7	213.6	0.4	223.7	12.4W	
MAY 14	2 28 44.0	12 22 46.5	10.21371	9.23683	-6.865	0.6	16.3	-18.8	35.0	0.4	223.7	14.1W	
MAY 16	2 29 42.4	12 27 28.1	10.20531	9.23635	-7.684	0.6	16.3	-18.9	216.4	0.4	223.8	15.7W	
MAY 18	2 30 40.6	12 32 6.7	10.19596	9.23587	-8.496	0.6	16.3	-19.0	37.8	0.3	223.9	17.4W	
MAY 20	2 31 38.5	12 36 42.1	10.18569	9.23539	-9.297	0.6	16.3	-19.1	219.1	0.3	224.0	19.1W	
MAY 22	2 32 36.0	12 41 14.1	10.17449	9.23491	-10.087	0.6	16.3	-19.1	40.5	0.3	224.0	20.7W	
MAY 24	2 33 33.1	12 45 42.4	10.16239	9.23444	-10.867	0.6	16.4	-19.2	221.9	0.3	224.1	22.4W	
MAY 26	2 34 29.9	12 50 7.0	10.14939	9.23396	-11.636	0.6	16.4	-19.3	43.3	0.2	224.2	24.1W	
MAY 28	2 35 26.2	12 54 27.8	10.13552	9.23348	-12.394	0.6	16.4	-19.4	224.7	0.2	224.2	25.8W	
MAY 30	2 36 22.2	12 58 44.6	10.12077	9.23300	-13.142	0.6	16.4	-19.4	46.2	0.2	224.3	27.4W	
JUN 1	2 37 17.6	13 2 57.5	10.10516	9.23253	-13.880	0.6	16.4	-19.5	227.6	0.2	224.4	29.1W	
JUN 3	2 38 12.5	13 7 6.2	10.08871	9.23205	-14.608	0.6	16.5	-19.6	49.0	0.1	224.5	30.8W	
JUN 5	2 39 6.9	13 11 10.7	10.07142	9.23158	-15.326	0.6	16.5	-19.6	230.5	0.1	224.5	32.5W	
JUN 7	2 40 0.7	13 15 10.8	10.05331	9.23110	-16.034	0.6	16.5	-19.7	51.9	0.1	224.6	34.2W	
JUN 9	2 40 53.8	13 19 6.2	10.03438	9.23063	-16.731	0.6	16.6	-19.8	233.3	0.0	224.7	35.8W	
JUN 11	2 41 46.4	13 22 57.0	10.01466	9.23015	-17.416	0.6	16.6	-19.8	54.8	0.0	224.7	37.5W	
JUN 13	2 42 38.2	13 26 43.1	9.99416	9.22968	-18.087	0.6	16.6	-19.9	236.3	360.0	224.8	39.2W	
JUN 15	2 43 29.4	13 30 24.3	9.97289	9.22920	-18.741	0.6	16.7	-20.0	57.7	360.0	224.9	40.9W	
JUN 17	2 44 19.7	13 34 0.5	9.95087	9.22873	-19.377	0.6	16.7	-20.0	239.2	359.9	225.0	42.6W	
JUN 19	2 45 9.3	13 37 31.5	9.92813	9.22826	-19.994	0.6	16.7	-20.1	60.7	359.9	225.0	44.3W	
JUN 21	2 45 58.0	13 40 57.2	9.90469	9.22778	-20.593	0.6	16.8	-20.1	242.2	359.9	225.1	46.0W	

Date (0 DT)	RA (Mean) (h m s)			Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 1	2 49 48.3	13 56 43.4	9.77769	9.22543	-23.313	0.6	17.0	-20.4	69.7	359.8	225.5	54.6W		
JUL 3	2 50 31.4	13 59 35.7	9.75047	9.22496	-23.804	0.6	17.0	-20.4	251.2	359.8	225.5	56.3W		
JUL 5	2 51 13.5	14 2 22.1	9.72270	9.22449	-24.277	0.6	17.1	-20.5	72.8	359.7	225.6	58.0W		
JUL 7	2 51 54.5	14 5 2.4	9.69440	9.22402	-24.731	0.6	17.1	-20.5	254.3	359.7	225.7	59.7W		
JUL 9	2 52 34.4	14 7 36.7	9.66558	9.22355	-25.164	0.6	17.2	-20.6	75.9	359.7	225.7	61.5W		
JUL 11	2 53 13.1	14 10 4.9	9.63627	9.22308	-25.576	0.6	17.2	-20.6	257.4	359.7	225.8	63.2W		
JUL 13	2 53 50.7	14 12 26.9	9.60651	9.22261	-25.963	0.6	17.3	-20.7	79.0	359.7	225.9	65.0W		
JUL 15	2 54 27.0	14 14 42.6	9.57631	9.22215	-26.324	0.6	17.4	-20.7	260.6	359.6	226.0	66.7W		
JUL 17	2 55 2.1	14 16 51.8	9.54570	9.22168	-26.658	0.6	17.4	-20.7	82.1	359.6	226.0	68.5W		
JUL 19	2 55 35.9	14 18 54.5	9.51473	9.22121	-26.967	0.6	17.5	-20.8	263.7	359.6	226.1	70.3W		
JUL 21	2 56 8.4	14 20 50.5	9.48342	9.22075	-27.249	0.6	17.5	-20.8	85.3	359.6	226.2	72.0W		
JUL 23	2 56 39.5	14 22 40.0	9.45179	9.22028	-27.506	0.6	17.6	-20.8	266.9	359.6	226.2	73.8W		
JUL 25	2 57 9.3	14 24 22.8	9.41988	9.21982	-27.737	0.6	17.6	-20.9	88.5	359.6	226.3	75.6W		
JUL 27	2 57 37.8	14 25 59.0	9.38772	9.21935	-27.944	0.5	17.7	-20.9	270.1	359.5	226.4	77.4W		
JUL 29	2 58 4.7	14 27 28.5	9.35534	9.21889	-28.125	0.5	17.8	-20.9	91.8	359.5	226.5	79.2W		
JUL 31	2 58 30.3	14 28 51.2	9.32276	9.21842	-28.282	0.5	17.8	-20.9	273.4	359.5	226.5	81.0W		
AUG 2	2 58 54.4	14 30 7.0	9.29001	9.21796	-28.413	0.5	17.9	-20.9	95.0	359.5	226.6	82.8W		
AUG 4	2 59 17.0	14 31 15.8	9.25713	9.21750	-28.518	0.5	18.0	-21.0	276.7	359.5	226.7	84.6W		
AUG 6	2 59 38.0	14 32 17.8	9.22414	9.21703	-28.596	0.5	18.0	-21.0	98.3	359.5	226.7	86.4W		
AUG 8	2 59 57.6	14 33 12.8	9.19108	9.21657	-28.644	0.5	18.1	-21.0	280.0	359.5	226.8	88.3W		
AUG 10	3 0 15.5	14 34 0.9	9.15798	9.21611	-28.660	0.5	18.1	-21.0	101.6	359.5	226.9	90.1W		
AUG 12	3 0 31.9	14 34 41.8	9.12488	9.21565	-28.643	0.5	18.2	-21.0	283.3	359.5	227.0	92.0W		
AUG 14	3 0 46.6	14 35 15.7	9.09182	9.21518	-28.594	0.5	18.3	-21.0	105.0	359.4	227.0	93.8W		
AUG 16	3 0 59.7	14 35 42.3	9.05884	9.21472	-28.512	0.5	18.3	-21.0	286.7	359.4	227.1	95.7W		
AUG 18	3 1 11.2	14 36 1.8	9.02596	9.21426	-28.399	0.5	18.4	-21.0	108.4	359.4	227.2	97.6W		
AUG 20	3 1 21.0	14 36 14.2	8.99324	9.21380	-28.254	0.5	18.5	-21.0	290.1	359.4	227.3	99.5W		
AUG 22	3 1 29.2	14 36 19.5	8.96070	9.21334	-28.078	0.4	18.5	-21.0	111.8	359.4	227.3	101.3W		
AUG 24	3 1 35.6	14 36 17.9	8.92839	9.21288	-27.872	0.4	18.6	-21.0	293.5	359.4	227.4	103.2W		
AUG 26	3 1 40.5	14 36 9.2	8.89633	9.21243	-27.636	0.4	18.7	-21.0	115.2	359.4	227.5	105.2W		
AUG 28	3 1 43.6	14 35 53.5	8.86455	9.21197	-27.371	0.4	18.7	-21.0	296.9	359.4	227.5	107.1W		
AUG 30	3 1 45.0	14 35 30.8	8.83310	9.21151	-27.076	0.4	18.8	-21.0	118.7	359.4	227.6	109.0W		
SEP 1	3 1 44.7	14 35 1.1	8.80201	9.21105	-26.750	0.4	18.9	-21.0	300.4	359.4	227.7	110.9W		
SEP 3	3 1 42.8	14 34 24.5	8.77132	9.21059	-26.392	0.4	18.9	-21.0	122.1	359.4	227.8	112.9W		
SEP 5	3 1 39.1	14 33 41.1	8.74105	9.21014	-26.001	0.4	19.0	-21.0	303.9	359.4	227.8	114.8W		
SEP 7	3 1 33.8	14 32 50.9	8.71126	9.20968	-25.575	0.4	19.1	-21.0	125.6	359.4	227.9	116.8W		
SEP 9	3 1 26.8	14 31 53.9	8.68198	9.20923	-25.114	0.3	19.1	-21.0	307.4	359.4	228.0	118.8W		
SEP 11	3 1 18.1	14 30 50.1	8.65326	9.20877	-24.618	0.3	19.2	-21.0	129.1	359.4	228.0	120.7W		
SEP 13	3 1 7.7	14 29 39.7	8.62512	9.20832	-24.089	0.3	19.3	-20.9	310.9	359.4	228.1	122.7W		
SEP 15	3 0 55.7	14 28 22.8	8.59762	9.20786	-23.527	0.3	19.3	-20.9	132.7	359.4	228.2	124.7W		
SEP 17	3 0 42.1	14 26 59.6	8.57078	9.20741	-22.935	0.3	19.4	-20.9	314.5	359.4	228.3	126.7W		
SEP 19	3 0 26.9	14 25 30.3	8.54464	9.20695	-22.312	0.3	19.5	-20.9	136.2	359.5	228.3	128.7W		
SEP 21	3 0 10.1	14 23 54.9	8.51924	9.20650	-21.660	0.3	19.5	-20.8	318.0	359.5	228.4	130.8W		
SEP 23	2 59 51.8	14 22 13.7	8.49461	9.20605	-20.980	0.3	19.6	-20.8	139.8	359.5	228.5	132.8W		
SEP 25	2 59 32.0	14 20 26.7	8.47078	9.20559	-20.274	0.2	19.6	-20.8	321.6	359.5	228.5	134.8W		
SEP 27	2 59 10.8	14 18 34.1	8.44778	9.20514	-19.541	0.2	19.7	-20.8	143.4	359.5	228.6	136.9W		
SEP 29	2 58 48.1	14 16 36.2	8.42565	9.20469	-18.781	0.2	19.7	-20.7	325.2	359.5	228.7	138.9W		
OCT 1	2 58 24.1	14 14 33.1	8.40441	9.20424	-17.993	0.2	19.8	-20.7	146.9	359.5	228.8	141.0W		
OCT 3	2 57 58.7	14 12 25.1	8.38409	9.20379	-17.177	0.2	19.8	-20.7	328.7	359.5	228.8	143.1W		
OCT 5	2 57 32.0	14 10 12.4	8.36473	9.20334	-16.332	0.2	19.9	-20.6	150.5	359.5	228.9	145.1W		
OCT 7	2 57 4.1	14 7 55.0	8.34637	9.20289	-15.460	0.2	19.9	-20.6	332.3	359.6	229.0	147.2W		
OCT 9	2 56 35.0	14 5 33.3	8.32902	9.20244	-14.562	0.2	20.0	-20.5	154.1	359.6	229.1	149.3W		
OCT 11	2 56 4.8	14 3 7.6	8.31273	9.20199	-13.640	0.2	20.0	-20.5	335.9	359.6	229.1	151.4W		
OCT 13	2 55 33.5	14 0 38.1	8.29752	9.20154	-12.696	0.1	20.0	-20.5	157.7	359.6	229.2	153.5W		
OCT 15	2 55 1.2	13 58 5.3	8.28341	9.20109	-11.733	0.1	20.1	-20.4	339.5	359.6	229.3	155.6W		
OCT 17	2 54 28.1	13 55 29.4	8.27042	9.20064	-10.751	0.1	20.1	-20.4	161.3	359.6	229.3	157.7W		
OCT 19	2 53 54.1	13 52 50.8	8.25857	9.20020	-9.754	0.1	20.1	-20.3	343.1	359.7	229.4	159.8W		
OCT 21	2 53 19.3	13 50 9.8	8.24789	9.19975	-8.744	0.1	20.1	-20.3	164.9	359.7	229.5	162.0W		
OCT 23	2 52 43.8	13 47 26.6	8.23837	9.19930	-7.721	0.1	20.2	-20.2	346.7	359.7	229.6	164.1W		
OCT 25	2 52 7.7	13 44 41.7	8.23005	9.19886	-6.687	0.1	20.2	-20.2	168.4	359.7	229.6	166.2W		
OCT 27	2 51 31.1	13 41 55.3	8.22293	9.19841	-5.642	0.1	20.2	-20.2	350.2	359.7	229.7	168.3W		
OCT 29	2 50 54.0	13 39 8.0	8.21702	9.19797	-4.586	0.0	20.2	-20.1	172.0	359.7	229.8	170.4W		
OCT 31	2 50 16.5	13 36 20.0	8.21233	9.19752	-3.519	0.0	20.2	-20.1	353.8	359.8	229.8	172.4W		
NOV 2	2 49 38.7	13 33 31.6	8.20889	9.19708	-2.443	0.0	20.2	-20.0	175.5	359.8	229.9	174.4W		
NOV 4	2 49 0.7	13 30 43.2	8.20669	9.19663	-1.359	0.0	20.3	-20.0	357.3	359.8	230.0	176.2W		
NOV 6	2 48 22.5	13 27 55.1	8.20575	9.19619	-0.270	0.0	20.3	-19.9	179.1	359.8	230.1	177.3W		
NOV 8	2 47 44.3	13 25 7.8	8.20606	9.19575	0.821	0.0	20.3	-19.9	0.8	359.8	230.1	177.0E		
NOV 10	2 47 6.2	13 22 21.8	8.20764	9.19531	1.912	0.0	20.2	-19.8	182.5	359.9	230.2	175.5E		
NOV 12	2 46 28.2	13 19 37.4	8.21048	9.19486	3.000	0.0	20.2	-19.8	4.3	359.9	230.3	173.6E		
NOV 14	2 45 50.4	13 16 55.2	8.21457	9.19442	4.083	0.1	20.2	-19.7	186.0	359.9	230.4	171.5E		
NOV 16	2 45 13.0	13 14 15.4	8.21990	9.19398	5.158	0.1	20.2	-19.7	7.7	359.9	230.4	169.4E		
NOV 18	2 44 35.9	13 11 38.4	8.22648	9.19354	6.224	0.1	20.2	-19.7	189.5	359.9	230.5	167.3E		
NOV 20	2 43 59.3	13 9 4.6	8.23427	9.19310	7.278	0.1	20.2	-19.6	11.2	360.0	230.6	165.2E		
NOV 22	2 43 23.3	13 6 34.3	8.24328	9.19266	8.320	0.1	20.2	-19.6	192.9	360.0	230.6	163.1E		
NOV 24	2 42 47.9	13 4 8.0	8.25349	9.19222	9.349	0.1	20.1	-19.5	14.6	360.0	230.7	160.9E		
NOV 26	2 42 13.3	13 1 46.1	8.26487	9.19178	10.365	0.1	20.1	-19.5	196.2	0.0	230.8	158.8E		
NOV 28	2 41 39.4	12 59 28.7	8.27742	9.19134	11.369	0.1	20.1	-19.5	17.9	0.0	230.9	156.6E		
NOV 30	2 41 6.4	12 57 16.3	8.29113	9.19090	12.359	0.2	20.0	-19.4	199.6	0.0	230.9	154.5E		
DEC 2	2 40 34.3	12 55 9.0	8.30597	9.19047	13.332	0.2	20.0	-19.4	21.2	0.1	231.0	152.3E		
DEC 4	2 40 3.2	12 53 7.2	8.32192	9.19003	14.286	0.2	20.0	-19.3	202.9	0.1	231.1	150.2E		
DEC 6	2 39 33.1	12 51 11.4	8.33896	9.18959	15.219	0.2	19.9	-19.3	24.5	0.1	231.1	148.0E		
DEC 8	2 39 4.3	12 49 21.8	8.35706	9.18915	16.128	0.2	19.9	-19.3	206.2	0.1	231.2	145.9E		
DEC 10	2 38 36.6	12 47 38.7	8.37621	9.18872	17.012	0.2	19.8	-19.3	27.8	0.1	231.3	143.7E		
DEC 12	2 38 10.2	12 46 2.5	8.39635	9.18828	17.869	0.2	19.8	-19.2	209.4	0.1	231.4	141.6E		
DEC 14	2 37 45.1	12 44 33.3	8.41747	9.18785	18.696	0.3	19.7	-19.2	31.0	0.1	231.4	139.5E		
DEC 16	2 37 21.4	12 43 11.3	8.43953	9.1874										

2000 SATURN

Geocentric Planetary Ephemeris

2000 SATURN

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")													
JAN 1	2 35 6.3	12 36 56.5	8.64557	9.18395	24.778	0.4	19.2	-19.1	224.9	0.2	232.1	120.5E		
JAN 3	2 34 56.7	12 36 46.6	8.67449	9.18352	25.296	0.4	19.2	-19.1	46.4	0.2	232.2	118.4E		
JAN 5	2 34 48.8	12 36 45.2	8.70399	9.18309	25.778	0.4	19.1	-19.1	227.9	0.2	232.2	116.4E		
JAN 7	2 34 42.6	12 36 52.4	8.73403	9.18266	26.223	0.4	19.0	-19.1	49.3	0.2	232.3	114.3E		
JAN 9	2 34 38.2	12 37 8.3	8.76456	9.18223	26.632	0.4	19.0	-19.1	230.8	0.2	232.4	112.3E		
JAN 11	2 34 35.5	12 37 32.8	8.79554	9.18181	27.002	0.4	18.9	-19.1	52.3	0.2	232.4	110.2E		
JAN 13	2 34 34.5	12 38 5.7	8.82692	9.18138	27.335	0.4	18.8	-19.1	233.7	0.2	232.5	108.2E		
JAN 15	2 34 35.3	12 38 47.2	8.85867	9.18095	27.630	0.4	18.8	-19.1	55.1	0.2	232.6	106.2E		
JAN 17	2 34 37.9	12 39 37.3	8.89074	9.18052	27.889	0.5	18.7	-19.1	236.6	0.2	232.7	104.1E		
JAN 19	2 34 42.3	12 40 35.7	8.92309	9.18010	28.113	0.5	18.6	-19.1	58.0	0.2	232.7	102.1E		
JAN 21	2 34 48.4	12 41 42.6	8.95567	9.17967	28.304	0.5	18.6	-19.2	239.4	0.2	232.8	100.1E		
JAN 23	2 34 56.2	12 42 57.7	8.98846	9.17924	28.463	0.5	18.5	-19.2	60.8	0.2	232.9	98.1E		
JAN 25	2 35 5.7	12 44 20.8	9.02142	9.17882	28.590	0.5	18.4	-19.2	242.2	0.2	233.0	96.1E		
JAN 27	2 35 17.0	12 45 51.9	9.05450	9.17839	28.684	0.5	18.4	-19.2	63.6	0.2	233.0	94.2E		
JAN 29	2 35 29.9	12 47 30.8	9.08767	9.17797	28.744	0.5	18.3	-19.2	244.9	0.2	233.1	92.2E		
JAN 31	2 35 44.6	12 49 17.7	9.12089	9.17755	28.769	0.5	18.2	-19.3	66.3	0.2	233.2	90.2E		
FEB 2	2 36 0.9	12 51 12.2	9.15412	9.17712	28.760	0.5	18.2	-19.3	247.7	0.2	233.2	88.3E		
FEB 4	2 36 19.0	12 53 14.3	9.18732	9.17670	28.715	0.5	18.1	-19.3	69.0	0.2	233.3	86.3E		
FEB 6	2 36 38.6	12 55 23.9	9.22044	9.17628	28.636	0.5	18.0	-19.4	250.4	0.2	233.4	84.4E		
FEB 8	2 36 59.9	12 57 40.6	9.25346	9.17585	28.523	0.5	18.0	-19.4	71.7	0.2	233.5	82.4E		
FEB 10	2 37 22.8	13 0 4.3	9.28632	9.17543	28.375	0.5	17.9	-19.5	253.1	0.1	233.5	80.5E		
FEB 12	2 37 47.3	13 2 34.9	9.31900	9.17501	28.195	0.6	17.8	-19.5	74.4	0.1	233.6	78.6E		
FEB 14	2 38 13.3	13 5 12.2	9.35145	9.17459	27.984	0.6	17.8	-19.5	255.7	0.1	233.7	76.7E		
FEB 16	2 38 40.9	13 7 56.1	9.38364	9.17417	27.745	0.6	17.7	-19.6	77.0	0.1	233.8	74.8E		
FEB 18	2 39 9.9	13 10 46.2	9.41553	9.17375	27.478	0.6	17.7	-19.6	258.3	0.1	233.8	72.9E		
FEB 20	2 39 40.4	13 13 42.4	9.44711	9.17333	27.186	0.6	17.6	-19.7	79.6	0.1	233.9	71.0E		
FEB 22	2 40 12.4	13 16 44.3	9.47833	9.17291	26.869	0.6	17.5	-19.7	260.9	0.1	234.0	69.1E		
FEB 24	2 40 45.7	13 19 51.8	9.50917	9.17250	26.526	0.6	17.5	-19.8	82.2	0.0	234.0	67.3E		
FEB 26	2 41 20.4	13 23 4.7	9.53960	9.17208	26.156	0.6	17.4	-19.8	263.5	0.0	234.1	65.4E		
FEB 28	2 41 56.5	13 26 22.9	9.56959	9.17166	25.760	0.6	17.4	-19.9	84.8	0.0	234.2	63.6E		
MAR 1	2 42 33.9	13 29 46.3	9.59910	9.17124	25.338	0.6	17.3	-20.0	266.1	360.0	234.3	61.7E		
MAR 3	2 43 12.6	13 33 14.5	9.62811	9.17083	24.889	0.6	17.3	-20.0	87.4	360.0	234.3	59.9E		
MAR 5	2 43 52.5	13 36 47.4	9.65659	9.17041	24.415	0.6	17.2	-20.1	268.7	360.0	234.4	58.1E		
MAR 7	2 44 33.7	13 40 24.7	9.68451	9.17000	23.915	0.6	17.2	-20.1	90.0	359.9	234.5	56.2E		
MAR 9	2 45 16.0	13 44 6.1	9.71183	9.16958	23.391	0.6	17.1	-20.2	271.2	359.9	234.5	54.4E		
MAR 11	2 45 59.5	13 47 51.4	9.73854	9.16917	22.845	0.6	17.1	-20.3	92.5	359.9	234.6	52.6E		
MAR 13	2 46 44.2	13 51 40.6	9.76460	9.16875	22.278	0.6	17.0	-20.3	273.8	359.9	234.7	50.8E		
MAR 15	2 47 29.9	13 55 33.4	9.79000	9.16834	21.694	0.6	17.0	-20.4	95.1	359.8	234.8	49.0E		
MAR 17	2 48 16.7	13 59 29.4	9.81471	9.16793	21.092	0.6	16.9	-20.4	276.3	359.8	234.8	47.2E		
MAR 19	2 49 4.4	14 3 28.5	9.83872	9.16751	20.475	0.6	16.9	-20.5	97.6	359.8	234.9	45.4E		
MAR 21	2 49 53.1	14 7 30.3	9.86201	9.16710	19.843	0.6	16.9	-20.6	278.9	359.8	235.0	43.7E		
MAR 23	2 50 42.8	14 11 34.7	9.88456	9.16669	19.195	0.6	16.8	-20.6	100.1	359.7	235.1	41.9E		
MAR 25	2 51 33.4	14 15 41.5	9.90635	9.16628	18.532	0.6	16.8	-20.7	281.4	359.7	235.1	40.1E		
MAR 27	2 52 24.8	14 19 50.7	9.92737	9.16587	17.852	0.6	16.7	-20.8	102.7	359.7	235.2	38.4E		
MAR 29	2 53 17.1	14 24 1.9	9.94759	9.16546	17.156	0.6	16.7	-20.9	283.9	359.7	235.3	36.6E		
MAR 31	2 54 10.2	14 28 15.1	9.96700	9.16505	16.445	0.6	16.7	-20.9	105.2	359.6	235.3	34.9E		
APR 2	2 55 4.1	14 32 29.8	9.98558	9.16464	15.719	0.5	16.6	-21.0	286.5	359.6	235.4	33.1E		
APR 4	2 55 58.7	14 36 46.0	10.00331	9.16423	14.978	0.5	16.6	-21.1	107.7	359.6	235.5	31.4E		
APR 6	2 56 54.0	14 41 3.4	10.02018	9.16382	14.223	0.5	16.6	-21.1	289.0	359.6	235.6	29.6E		
APR 8	2 57 50.0	14 45 21.8	10.03616	9.16342	13.457	0.5	16.6	-21.2	110.3	359.5	235.6	27.9E		
APR 10	2 58 46.6	14 49 41.1	10.05126	9.16301	12.681	0.5	16.5	-21.3	291.6	359.5	235.7	26.2E		
APR 12	2 59 43.9	14 54 1.1	10.06546	9.16260	11.898	0.5	16.5	-21.3	112.8	359.5	235.8	24.5E		
APR 14	3 0 41.6	14 58 21.6	10.07875	9.16220	11.109	0.5	16.5	-21.4	294.1	359.4	235.9	22.8E		
APR 16	3 1 39.9	15 2 42.2	10.09112	9.16179	10.315	0.5	16.5	-21.5	115.4	359.4	235.9	21.1E		
APR 18	3 2 38.6	15 7 2.8	10.10258	9.16139	9.515	0.5	16.5	-21.6	296.7	359.4	236.0	19.4E		
APR 20	3 3 37.8	15 11 23.2	10.11311	9.16098	8.710	0.5	16.4	-21.6	117.9	359.4	236.1	17.7E		
APR 22	3 4 37.4	15 15 43.4	10.12270	9.16058	7.899	0.5	16.4	-21.7	299.2	359.3	236.1	16.0E		
APR 24	3 5 37.4	15 20 3.3	10.13136	9.16017	7.082	0.5	16.4	-21.8	120.5	359.3	236.2	14.3E		
APR 26	3 6 37.8	15 24 22.6	10.13906	9.15977	6.259	0.5	16.4	-21.8	301.8	359.3	236.3	12.6E		
APR 28	3 7 38.4	15 28 41.1	10.14582	9.15937	5.430	0.5	16.4	-21.9	123.1	359.2	236.4	11.0E		
APR 30	3 8 39.4	15 32 58.8	10.15161	9.15897	4.596	0.5	16.4	-22.0	304.4	359.2	236.4	9.3E		
MAY 2	3 9 40.6	15 37 15.3	10.15643	9.15856	3.757	0.4	16.4	-22.0	125.7	359.2	236.5	7.7E		
MAY 4	3 10 42.0	15 41 30.6	10.16029	9.15816	2.914	0.4	16.4	-22.1	307.0	359.1	236.6	6.1E		
MAY 6	3 11 43.6	15 45 44.5	10.16317	9.15776	2.070	0.4	16.4	-22.2	128.3	359.1	236.7	4.5E		
MAY 8	3 12 45.4	15 49 57.0	10.16507	9.15736	1.226	0.4	16.3	-22.2	309.6	359.1	236.7	3.1E		
MAY 10	3 13 47.2	15 54 7.8	10.16600	9.15696	0.384	0.4	16.3	-22.3	130.9	359.0	236.8	2.1E		
MAY 12	3 14 49.1	15 58 16.7	10.16596	9.15656	-0.455	0.4	16.3	-22.4	312.2	359.0	236.9	2.2W		
MAY 14	3 15 51.0	16 2 23.5	10.16496	9.15617	-1.289	0.4	16.3	-22.4	133.6	359.0	236.9	3.3W		
MAY 16	3 16 53.0	16 6 28.1	10.16299	9.15577	-2.120	0.4	16.4	-22.5	314.9	359.0	237.0	4.8W		
MAY 18	3 17 54.9	16 10 30.4	10.16006	9.15537	-2.948	0.4	16.4	-22.6	136.2	358.9	237.1	6.3W		
MAY 20	3 18 56.7	16 14 30.4	10.15618	9.15497	-3.773	0.4	16.4	-22.6	317.6	358.9	237.2	7.9W		
MAY 22	3 19 58.4	16 18 28.0	10.15135	9.15458	-4.595	0.4	16.4	-22.7	138.9	358.9	237.2	9.5W		
MAY 24	3 21 0.1	16 22 23.1	10.14557	9.15418	-5.414	0.4	16.4	-22.7	320.3	358.8	237.3	11.2W		
MAY 26	3 22 1.5	16 26 15.4	10.13885	9.15378	-6.231	0.4	16.4	-22.8	141.6	358.8	237.4	12.8W		
MAY 28	3 23 2.8	16 30 4.8	10.13118	9.15339	-7.044	0.5	16.4	-22.9	323.0	358.8	237.5	14.5W		
MAY 30	3 24 3.8	16 33 51.3	10.12258	9.15299	-7.853	0.5	16.4	-22.9	144.3	358.7	237.5	16.1W		
JUN 1	3 25 4.5	16 37 34.7	10.11304	9.15260	-8.658	0.5	16.4	-23.0	325.7	358.7	237.6	17.8W		
JUN 3	3 26 5.0	16 41 15.0	10.10258	9.15221	-9.455	0.5	16.5	-23.0	147.1	358.7	237.7	19.4W		
JUN 5	3 27 5.1	16 44 52.1	10.09120	9.15181	-10.244	0.5	16.5	-23.1	328.4	358.6	237.7	21.1W		
JUN 7	3 28 4.9	16 48 25.8	10.07892	9.15142	-11.021	0.5	16.5	-23.1	149.8	358.6	237.8	22.8W		
JUN 9	3 29 4.2	16 51 56.0	10.06575	9.15103	-11.786	0.5	16.5	-23.2	331.2	358.6	237.9	24.4W		
JUN 11	3 30 3.0	16 55 22.4	10.05170	9.15064	-12.540	0.5	16.5	-23.2	152.6	358.5	238.0	26.1W		
JUN 13	3 31 1.4	16 58 45.1	10.03679	9.15025	-13.282	0.5	16.6	-23.3	334.0	358.5	238.0	27.8W		
JUN 15	3 31 59.2	17 2 4.1	10.02102	9.14985	-14.013	0.5	16.6	-23.3	155.4	358.5	238.1	29.4W		
JUN 17	3 32 56.5	17 5 19.2	10.00442</											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	3 39 19.5	17 26 12.2	9.86584	9.14675	-19.456	0.5	16.8	-23.7	166.9	358.3	238.7	42.9W	
JUL 3	3 40 11.1	17 28 54.1	9.84298	9.14636	-20.075	0.5	16.9	-23.7	348.4	358.2	238.8	44.6W	
JUL 5	3 41 1.9	17 31 31.6	9.81944	9.14598	-20.674	0.5	16.9	-23.8	169.9	358.2	238.8	46.3W	
JUL 7	3 41 51.8	17 34 4.4	9.79522	9.14559	-21.254	0.5	17.0	-23.8	351.4	358.2	238.9	48.0W	
JUL 9	3 42 40.7	17 36 32.5	9.77035	9.14521	-21.813	0.5	17.0	-23.8	172.9	358.2	239.0	49.7W	
JUL 11	3 43 28.7	17 38 55.9	9.74484	9.14482	-22.354	0.5	17.1	-23.9	354.4	358.1	239.1	51.4W	
JUL 13	3 44 15.6	17 41 14.6	9.71872	9.14444	-22.875	0.5	17.1	-23.9	175.9	358.1	239.1	53.1W	
JUL 15	3 45 1.6	17 43 28.6	9.69200	9.14406	-23.378	0.5	17.1	-23.9	357.4	358.1	239.2	54.8W	
JUL 17	3 45 46.4	17 45 37.9	9.66472	9.14367	-23.863	0.5	17.2	-24.0	178.9	358.1	239.3	56.5W	
JUL 19	3 46 30.1	17 47 42.3	9.63688	9.14329	-24.329	0.5	17.2	-24.0	0.4	358.0	239.4	58.3W	
JUL 21	3 47 12.7	17 49 41.9	9.60852	9.14291	-24.776	0.5	17.3	-24.0	181.9	358.0	239.4	60.0W	
JUL 23	3 47 54.1	17 51 36.5	9.57965	9.14253	-25.204	0.5	17.3	-24.0	3.5	358.0	239.5	61.7W	
JUL 25	3 48 34.3	17 53 26.1	9.55030	9.14215	-25.611	0.5	17.4	-24.1	185.0	358.0	239.6	63.5W	
JUL 27	3 49 13.3	17 55 10.7	9.52050	9.14177	-25.997	0.5	17.5	-24.1	6.6	358.0	239.6	65.2W	
JUL 29	3 49 50.9	17 56 50.4	9.49026	9.14139	-26.360	0.5	17.5	-24.1	188.2	357.9	239.7	67.0W	
JUL 31	3 50 27.3	17 58 25.1	9.45961	9.14101	-26.697	0.5	17.6	-24.1	9.7	357.9	239.8	68.8W	
AUG 2	3 51 2.3	17 59 54.6	9.42859	9.14064	-27.007	0.5	17.6	-24.2	191.3	357.9	239.9	70.5W	
AUG 4	3 51 35.9	18 1 18.9	9.39723	9.14026	-27.289	0.5	17.7	-24.2	12.9	357.9	239.9	72.3W	
AUG 6	3 52 8.1	18 2 37.9	9.36556	9.13988	-27.543	0.4	17.7	-24.2	194.5	357.9	240.0	74.1W	
AUG 8	3 52 38.8	18 3 51.7	9.33361	9.13950	-27.771	0.4	17.8	-24.2	16.1	357.9	240.1	75.9W	
AUG 10	3 53 8.1	18 5 0.4	9.30142	9.13913	-27.972	0.4	17.9	-24.2	197.7	357.8	240.2	77.7W	
AUG 12	3 53 35.8	18 6 3.9	9.26900	9.13875	-28.147	0.4	17.9	-24.2	19.3	357.8	240.2	79.5W	
AUG 14	3 54 2.1	18 7 2.2	9.23640	9.13838	-28.296	0.4	18.0	-24.3	201.0	357.8	240.3	81.3W	
AUG 16	3 54 26.8	18 7 55.3	9.20364	9.13800	-28.419	0.4	18.1	-24.3	22.6	357.8	240.4	83.1W	
AUG 18	3 54 49.9	18 8 43.1	9.17076	9.13763	-28.515	0.4	18.1	-24.3	204.2	357.8	240.4	85.0W	
AUG 20	3 55 11.3	18 9 25.7	9.13778	9.13726	-28.585	0.4	18.2	-24.3	25.9	357.8	240.5	86.8W	
AUG 22	3 55 31.2	18 10 2.9	9.10473	9.13688	-28.628	0.4	18.3	-24.3	207.5	357.8	240.6	88.6W	
AUG 24	3 55 49.5	18 10 35.0	9.07165	9.13651	-28.641	0.4	18.3	-24.3	29.2	357.8	240.7	90.5W	
AUG 26	3 56 6.0	18 11 1.8	9.03858	9.13614	-28.623	0.4	18.4	-24.3	210.9	357.8	240.7	92.4W	
AUG 28	3 56 20.9	18 11 23.4	9.00554	9.13577	-28.573	0.4	18.5	-24.3	32.5	357.8	240.8	94.2W	
AUG 30	3 56 34.0	18 11 39.7	8.97258	9.13540	-28.488	0.4	18.5	-24.3	214.2	357.7	240.9	96.1W	
SEP 1	3 56 45.3	18 11 50.5	8.93974	9.13503	-28.369	0.4	18.6	-24.3	35.9	357.7	241.0	98.0W	
SEP 3	3 56 54.9	18 11 56.1	8.90706	9.13466	-28.217	0.3	18.7	-24.3	217.6	357.7	241.0	99.9W	
SEP 5	3 57 2.8	18 11 56.4	8.87457	9.13429	-28.032	0.3	18.7	-24.3	39.3	357.7	241.1	101.8W	
SEP 7	3 57 8.9	18 11 51.5	8.84231	9.13392	-27.815	0.3	18.8	-24.3	221.0	357.7	241.2	103.7W	
SEP 9	3 57 13.2	18 11 41.5	8.81032	9.13355	-27.567	0.3	18.9	-24.3	42.8	357.7	241.3	105.6W	
SEP 11	3 57 15.7	18 11 26.4	8.77864	9.13318	-27.288	0.3	18.9	-24.3	224.5	357.7	241.3	107.6W	
SEP 13	3 57 16.5	18 11 6.2	8.74729	9.13282	-26.978	0.3	19.0	-24.3	46.2	357.7	241.4	109.5W	
SEP 15	3 57 15.4	18 10 40.9	8.71632	9.13245	-26.637	0.3	19.1	-24.3	228.0	357.7	241.5	111.5W	
SEP 17	3 57 12.6	18 10 10.5	8.68577	9.13209	-26.266	0.3	19.1	-24.3	49.7	357.7	241.5	113.4W	
SEP 19	3 57 8.0	18 9 35.1	8.65565	9.13172	-25.864	0.3	19.2	-24.3	231.4	357.7	241.6	115.4W	
SEP 21	3 57 1.7	18 8 54.8	8.62603	9.13136	-25.428	0.2	19.3	-24.3	53.2	357.7	241.7	117.4W	
SEP 23	3 56 53.6	18 8 9.7	8.59692	9.13099	-24.959	0.2	19.3	-24.2	235.0	357.7	241.8	119.4W	
SEP 25	3 56 43.7	18 7 19.8	8.56838	9.13063	-24.455	0.2	19.4	-24.2	56.7	357.7	241.8	121.4W	
SEP 27	3 56 32.0	18 6 25.1	8.54044	9.13026	-23.915	0.2	19.5	-24.2	238.5	357.8	241.9	123.4W	
SEP 29	3 56 18.6	18 5 25.6	8.51314	9.12990	-23.341	0.2	19.5	-24.2	60.3	357.8	242.0	125.4W	
OCT 1	3 56 3.5	18 4 21.4	8.48653	9.12954	-22.733	0.2	19.6	-24.2	242.1	357.8	242.1	127.4W	
OCT 3	3 55 46.8	18 3 12.7	8.46063	9.12918	-22.093	0.2	19.6	-24.2	63.8	357.8	242.1	129.4W	
OCT 5	3 55 28.4	18 1 59.7	8.43550	9.12882	-21.423	0.2	19.7	-24.2	245.6	357.8	242.2	131.5W	
OCT 7	3 55 8.4	18 0 42.5	8.41115	9.12846	-20.724	0.1	19.8	-24.1	67.4	357.8	242.3	133.5W	
OCT 9	3 54 46.9	17 59 21.2	8.38763	9.12810	-19.997	0.1	19.8	-24.1	249.2	357.8	242.3	135.6W	
OCT 11	3 54 23.8	17 57 55.9	8.36496	9.12774	-19.243	0.1	19.9	-24.1	71.0	357.8	242.4	137.7W	
OCT 13	3 53 59.3	17 56 26.7	8.34318	9.12738	-18.463	0.1	19.9	-24.1	252.8	357.8	242.5	139.7W	
OCT 15	3 53 33.3	17 54 53.7	8.32232	9.12702	-17.657	0.1	20.0	-24.1	74.6	357.8	242.6	141.8W	
OCT 17	3 53 6.0	17 53 17.2	8.30240	9.12666	-16.826	0.1	20.0	-24.0	256.4	357.9	242.6	143.9W	
OCT 19	3 52 37.4	17 51 37.3	8.28345	9.12631	-15.969	0.1	20.1	-24.0	78.2	357.9	242.7	146.0W	
OCT 21	3 52 7.4	17 49 54.3	8.26552	9.12595	-15.084	0.1	20.1	-24.0	260.0	357.9	242.8	148.1W	
OCT 23	3 51 36.3	17 48 8.1	8.24861	9.12560	-14.174	0.0	20.1	-24.0	81.8	357.9	242.9	150.2W	
OCT 25	3 51 3.9	17 46 19.0	8.23278	9.12524	-13.238	0.0	20.2	-23.9	263.6	357.9	242.9	152.3W	
OCT 27	3 50 30.5	17 44 27.0	8.21804	9.12489	-12.279	0.0	20.2	-23.9	85.4	357.9	243.0	154.5W	
OCT 29	3 49 56.1	17 42 32.7	8.20442	9.12453	-11.298	0.0	20.3	-23.9	267.2	357.9	243.1	156.6W	
OCT 31	3 49 20.7	17 40 36.1	8.19194	9.12418	-10.299	0.0	20.3	-23.9	89.0	358.0	243.2	158.7W	
NOV 2	3 48 44.6	17 38 37.6	8.18063	9.12382	-9.284	0.0	20.3	-23.8	270.8	358.0	243.2	160.9W	
NOV 4	3 48 7.6	17 36 37.5	8.17050	9.12347	-8.255	0.0	20.3	-23.8	92.6	358.0	243.3	163.0W	
NOV 6	3 47 29.9	17 34 35.9	8.16156	9.12312	-7.213	0.0	20.4	-23.8	274.4	358.0	243.4	165.1W	
NOV 8	3 46 51.7	17 32 33.1	8.15383	9.12277	-6.162	-0.1	20.4	-23.7	96.2	358.0	243.4	167.3W	
NOV 10	3 46 12.9	17 30 29.3	8.14733	9.12242	-5.101	-0.1	20.4	-23.7	278.0	358.1	243.5	169.4W	
NOV 12	3 45 33.7	17 28 24.8	8.14205	9.12207	-4.033	-0.1	20.4	-23.7	99.8	358.1	243.6	171.5W	
NOV 14	3 44 54.2	17 26 20.0	8.13801	9.12172	-2.959	-0.1	20.4	-23.6	281.5	358.1	243.7	173.5W	
NOV 16	3 44 14.4	17 24 15.1	8.13521	9.12137	-1.877	-0.1	20.4	-23.6	103.3	358.1	243.7	175.5W	
NOV 18	3 43 34.4	17 22 10.5	8.13367	9.12102	-0.789	-0.1	20.4	-23.6	285.1	358.1	243.8	177.1W	
NOV 20	3 42 54.4	17 20 6.2	8.13339	9.12067	0.304	-0.1	20.4	-23.6	106.9	358.2	243.9	177.6W	
NOV 22	3 42 14.3	17 18 2.6	8.13437	9.12032	1.401	-0.1	20.4	-23.5	288.6	358.2	244.0	176.4E	
NOV 24	3 41 34.3	17 16 0.0	8.13662	9.11998	2.498	-0.1	20.4	-23.5	110.4	358.2	244.0	174.6E	
NOV 26	3 40 54.6	17 13 58.8	8.14014	9.11963	3.592	-0.1	20.4	-23.5	292.1	358.2	244.1	172.6E	
NOV 28	3 40 15.1	17 11 59.3	8.14491	9.11928	4.681	-0.1	20.4	-23.4	113.8	358.2	244.2	170.5E	
NOV 30	3 39 36.0	17 10 1.9	8.15094	9.11894	5.761	-0.1	20.4	-23.4	295.6	358.3	244.3	168.3E	
DEC 2	3 38 57.5	17 8 6.8	8.15822	9.11860	6.832	0.0	20.4	-23.4	117.3	358.3	244.3	166.2E	
DEC 4	3 38 19.4	17 6 14.3	8.16672	9.11825	7.890	0.0	20.4	-23.4	299.0	358.3	244.4	164.0E	
DEC 6	3 37 42.0	17 4 24.8	8.17644	9.11791	8.934	0.0	20.3	-23.3	120.7	358.3	244.5	161.9E	
DEC 8	3 37 5.4	17 2 38.3	8.18735	9.11756	9.961	0.0	20.3	-23.3	302.4	358.3	244.5	159.7E	
DEC 10	3 36 29.5	17 0 55.4	8.19944	9.11722	10.973	0.0	20.3	-23.3	124.1	358.4	244.6	157.5E	
DEC 12	3 35 54.6	16 59 16.3	8.21269	9.11688	11.967	0.0	20.2	-23.3	305.8	358.4	244.7	155.4E	
DEC 14	3 35 20.7	16 57 41.3	8.22707	9.11654	12.944	0.0	20.2	-23.2	127.4	358.4	244.8	153.2E	
DEC 16	3 34 47.7	16 56 10.5	8.24258	9.11620	13.904								

Date (0 DT)	RA (Mean)			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")													
JAN 1	3 31 9.5	16 47 4.0	8.40396	9.11349	20.737	0.2	19.8	-23.1	322.0	358.5	245.4	133.9E		
JAN 3	3 30 48.8	16 46 21.4	8.42833	9.11316	21.458	0.2	19.7	-23.1	143.6	358.5	245.5	131.8E		
JAN 5	3 30 29.7	16 45 45.1	8.45352	9.11282	22.145	0.2	19.7	-23.1	325.1	358.5	245.6	129.7E		
JAN 7	3 30 12.2	16 45 15.1	8.47948	9.11249	22.799	0.2	19.6	-23.1	146.7	358.5	245.6	127.6E		
JAN 9	3 29 56.5	16 44 51.6	8.50618	9.11215	23.421	0.2	19.5	-23.1	328.2	358.6	245.7	125.5E		
JAN 11	3 29 42.4	16 44 34.7	8.53357	9.11182	24.011	0.2	19.5	-23.1	149.7	358.6	245.8	123.4E		
JAN 13	3 29 30.1	16 44 24.4	8.56163	9.11149	24.571	0.2	19.4	-23.1	331.2	358.6	245.9	121.3E		
JAN 15	3 29 19.5	16 44 20.6	8.59032	9.11116	25.099	0.2	19.3	-23.1	152.7	358.6	245.9	119.2E		
JAN 17	3 29 10.7	16 44 23.4	8.61960	9.11082	25.595	0.3	19.3	-23.1	334.2	358.6	246.0	117.2E		
JAN 19	3 29 3.7	16 44 32.9	8.64944	9.11049	26.055	0.3	19.2	-23.1	155.7	358.6	246.1	115.1E		
JAN 21	3 28 58.5	16 44 49.3	8.67978	9.11016	26.481	0.3	19.1	-23.1	337.2	358.6	246.2	113.1E		
JAN 23	3 28 55.2	16 45 12.4	8.71060	9.10983	26.869	0.3	19.1	-23.1	158.6	358.6	246.2	111.0E		
JAN 25	3 28 53.7	16 45 42.4	8.74184	9.10950	27.221	0.3	19.0	-23.1	340.1	358.6	246.3	109.0E		
JAN 27	3 28 54.0	16 46 19.1	8.77347	9.10918	27.535	0.3	18.9	-23.1	161.5	358.6	246.4	106.9E		
JAN 29	3 28 56.1	16 47 2.5	8.80543	9.10885	27.811	0.3	18.9	-23.1	342.9	358.6	246.5	104.9E		
JAN 31	3 29 0.1	16 47 52.6	8.83770	9.10852	28.049	0.3	18.8	-23.1	164.3	358.6	246.5	102.9E		
FEB 2	3 29 6.0	16 48 49.2	8.87022	9.10819	28.251	0.3	18.7	-23.1	345.8	358.6	246.6	100.9E		
FEB 4	3 29 13.7	16 49 52.3	8.90295	9.10787	28.417	0.4	18.7	-23.2	167.2	358.6	246.7	98.9E		
FEB 6	3 29 23.1	16 51 1.9	8.93585	9.10754	28.549	0.4	18.6	-23.2	348.6	358.6	246.7	96.9E		
FEB 8	3 29 34.4	16 52 17.9	8.96889	9.10722	28.649	0.4	18.5	-23.2	169.9	358.6	246.8	95.0E		
FEB 10	3 29 47.5	16 53 40.0	9.00203	9.10689	28.718	0.4	18.5	-23.2	351.3	358.6	246.9	93.0E		
FEB 12	3 30 2.3	16 55 8.1	9.03522	9.10657	28.755	0.4	18.4	-23.2	172.7	358.5	247.0	91.0E		
FEB 14	3 30 18.9	16 56 42.0	9.06844	9.10624	28.761	0.4	18.3	-23.3	354.0	358.5	247.0	89.1E		
FEB 16	3 30 37.2	16 58 21.8	9.10165	9.10592	28.734	0.4	18.3	-23.3	175.4	358.5	247.1	87.1E		
FEB 18	3 30 57.2	17 0 7.4	9.13481	9.10560	28.674	0.4	18.2	-23.3	356.7	358.5	247.2	85.2E		
FEB 20	3 31 19.0	17 1 58.6	9.16788	9.10528	28.580	0.4	18.1	-23.3	178.1	358.5	247.3	83.3E		
FEB 22	3 31 42.4	17 3 55.2	9.20083	9.10496	28.453	0.4	18.1	-23.4	359.4	358.5	247.3	81.4E		
FEB 24	3 32 7.5	17 5 57.1	9.23360	9.10464	28.293	0.4	18.0	-23.4	180.7	358.5	247.4	79.5E		
FEB 26	3 32 34.2	17 8 4.1	9.26618	9.10432	28.100	0.4	17.9	-23.4	2.0	358.5	247.5	77.6E		
FEB 28	3 33 2.5	17 10 16.0	9.29851	9.10400	27.876	0.4	17.9	-23.5	183.4	358.5	247.6	75.7E		
MAR 2	3 33 32.4	17 12 32.7	9.33057	9.10368	27.622	0.4	17.8	-23.5	4.7	358.4	247.6	73.8E		
MAR 4	3 34 3.8	17 14 54.0	9.36231	9.10336	27.338	0.4	17.8	-23.5	186.0	358.4	247.7	71.9E		
MAR 6	3 34 36.8	17 17 19.8	9.39371	9.10304	27.029	0.4	17.7	-23.6	7.3	358.4	247.8	70.0E		
MAR 8	3 35 11.2	17 19 49.8	9.42474	9.10273	26.694	0.5	17.6	-23.6	188.6	358.4	247.9	68.2E		
MAR 10	3 35 47.0	17 22 23.8	9.45537	9.10241	26.337	0.5	17.6	-23.7	9.8	358.4	247.9	66.3E		
MAR 12	3 36 24.3	17 25 1.4	9.48558	9.10210	25.956	0.5	17.5	-23.7	191.1	358.4	248.0	64.5E		
MAR 14	3 37 2.9	17 27 42.7	9.51533	9.10178	25.552	0.5	17.5	-23.7	12.4	358.3	248.1	62.7E		
MAR 16	3 37 42.8	17 30 27.5	9.54460	9.10147	25.124	0.5	17.4	-23.8	193.7	358.3	248.1	60.8E		
MAR 18	3 38 24.1	17 33 15.6	9.57336	9.10115	24.670	0.5	17.4	-23.8	15.0	358.3	248.2	59.0E		
MAR 20	3 39 6.7	17 36 6.9	9.60159	9.10084	24.193	0.5	17.3	-23.9	196.2	358.3	248.3	57.2E		
MAR 22	3 39 50.5	17 39 1.2	9.62924	9.10053	23.692	0.5	17.3	-23.9	17.5	358.2	248.4	55.4E		
MAR 24	3 40 35.6	17 41 58.1	9.65631	9.10022	23.167	0.5	17.2	-23.9	198.8	358.2	248.4	53.6E		
MAR 26	3 41 21.8	17 44 57.6	9.68276	9.09990	22.619	0.5	17.2	-24.0	20.0	358.2	248.5	51.8E		
MAR 28	3 42 9.1	17 47 59.4	9.70856	9.09959	22.050	0.5	17.1	-24.0	201.3	358.2	248.6	50.0E		
MAR 30	3 42 57.6	17 51 3.4	9.73369	9.09928	21.461	0.5	17.1	-24.1	22.5	358.2	248.7	48.3E		
APR 1	3 43 47.1	17 54 9.5	9.75813	9.09897	20.854	0.5	17.0	-24.1	203.8	358.1	248.7	46.5E		
APR 3	3 44 37.7	17 57 17.4	9.78186	9.09867	20.231	0.5	17.0	-24.2	25.0	358.1	248.8	44.7E		
APR 5	3 45 29.3	18 0 26.8	9.80486	9.09836	19.593	0.5	17.0	-24.2	206.3	358.1	248.9	43.0E		
APR 7	3 46 21.7	18 3 37.6	9.82712	9.09805	18.943	0.5	16.9	-24.3	27.6	358.0	249.0	41.2E		
APR 9	3 47 15.1	18 6 49.5	9.84862	9.09774	18.279	0.5	16.9	-24.3	208.8	358.0	249.0	39.5E		
APR 11	3 48 9.4	18 10 2.5	9.86935	9.09744	17.602	0.4	16.8	-24.4	30.1	358.0	249.1	37.7E		
APR 13	3 49 4.6	18 13 16.4	9.88928	9.09713	16.911	0.4	16.8	-24.4	211.3	358.0	249.2	36.0E		
APR 15	3 50 0.5	18 16 31.1	9.90841	9.09683	16.205	0.4	16.8	-24.4	32.6	357.9	249.3	34.3E		
APR 17	3 50 57.3	18 19 46.5	9.92672	9.09652	15.485	0.4	16.7	-24.5	213.8	357.9	249.3	32.5E		
APR 19	3 51 54.7	18 23 2.2	9.94418	9.09622	14.752	0.4	16.7	-24.5	35.1	357.9	249.4	30.8E		
APR 21	3 52 52.9	18 26 18.2	9.96079	9.09592	14.005	0.4	16.7	-24.6	216.3	357.9	249.5	29.1E		
APR 23	3 53 51.8	18 29 34.2	9.97653	9.09561	13.246	0.4	16.7	-24.6	37.6	357.8	249.5	27.4E		
APR 25	3 54 51.3	18 32 50.2	9.99139	9.09531	12.475	0.4	16.6	-24.7	218.8	357.8	249.6	25.7E		
APR 27	3 55 51.4	18 36 6.0	10.00535	9.09501	11.695	0.4	16.6	-24.7	40.1	357.8	249.7	24.0E		
APR 29	3 56 52.0	18 39 21.4	10.01841	9.09471	10.907	0.4	16.6	-24.8	221.4	357.7	249.8	22.3E		
MAY 1	3 57 53.2	18 42 36.4	10.03055	9.09441	10.113	0.4	16.6	-24.8	42.6	357.7	249.8	20.6E		
MAY 3	3 58 54.9	18 45 50.7	10.04177	9.09411	9.315	0.4	16.6	-24.9	223.9	357.7	249.9	18.9E		
MAY 5	3 59 56.9	18 49 4.0	10.05207	9.09381	8.514	0.4	16.5	-24.9	45.2	357.6	250.0	17.2E		
MAY 7	4 0 59.4	18 52 16.3	10.06144	9.09351	7.709	0.4	16.5	-24.9	226.4	357.6	250.1	15.6E		
MAY 9	4 2 2.3	18 55 27.5	10.06988	9.09322	6.900	0.4	16.5	-25.0	47.7	357.6	250.1	13.9E		
MAY 11	4 3 5.5	18 58 37.6	10.07738	9.09292	6.086	0.4	16.5	-25.0	229.0	357.5	250.2	12.2E		
MAY 13	4 4 9.1	19 1 46.5	10.08394	9.09262	5.267	0.4	16.5	-25.1	50.3	357.5	250.3	10.6E		
MAY 15	4 5 12.9	19 4 53.9	10.08955	9.09233	4.443	0.4	16.5	-25.1	231.5	357.5	250.4	8.9E		
MAY 17	4 6 16.9	19 7 59.8	10.09420	9.09203	3.614	0.3	16.5	-25.1	52.8	357.4	250.4	7.3E		
MAY 19	4 7 21.2	19 11 4.0	10.09790	9.09174	2.782	0.3	16.5	-25.2	234.1	357.4	250.5	5.7E		
MAY 21	4 8 25.6	19 14 6.4	10.10063	9.09144	1.946	0.3	16.5	-25.2	55.4	357.4	250.6	4.1E		
MAY 23	4 9 30.1	19 17 6.9	10.10240	9.09115	1.109	0.3	16.5	-25.3	236.7	357.4	250.7	2.7E		
MAY 25	4 10 34.8	19 20 5.5	10.10320	9.09086	0.270	0.3	16.4	-25.3	58.0	357.3	250.7	1.8E		
MAY 27	4 11 39.5	19 23 2.1	10.10303	9.09057	-0.566	0.3	16.4	-25.3	239.3	357.3	250.8	2.1W		
MAY 29	4 12 44.3	19 25 56.5	10.10189	9.09028	-1.399	0.3	16.5	-25.4	60.6	357.3	250.9	3.3W		
MAY 31	4 13 49.0	19 28 48.6	10.09980	9.08999	-2.228	0.3	16.5	-25.4	241.9	357.2	250.9	4.9W		
JUN 2	4 14 53.6	19 31 38.2	10.09675	9.08970	-3.052	0.3	16.5	-25.4	63.2	357.2	251.0	6.4W		
JUN 4	4 15 58.1	19 34 25.3	10.09275	9.08941	-3.871	0.3	16.5	-25.5	244.6	357.2	251.1	8.0W		
JUN 6	4 17 2.6	19 37 9.9	10.08781	9.08912	-4.686	0.3	16.5	-25.5	65.9	357.1	251.2	9.7W		
JUN 8	4 18 6.9	19 39 51.9	10.08193	9.08883	-5.497	0.4	16.5	-25.5	247.2	357.1	251.2	11.3W		
JUN 10	4 19 11.0	19 42 31.4	10.07512	9.08854	-6.305	0.4	16.5	-25.6	68.6	357.1	251.3	12.9W		
JUN 12	4 20 14.8	19 45 8.1	10.06737	9.08826	-7.110	0.4	16.5	-25.6	249.9	357.0	251.4	14.6W		
JUN 14	4 21 18.4	19 47 42.1	10.05869	9.08797	-7.910	0.4	16.5	-25.6	71.3	357.0	251.5	16.2W		
JUN 16	4 22 21.7	19 50 13.2	10.04910	9.08769	-8.707	0.4	16.5	-25.7	252.6	357.0	251.5	17.9W		
JUN 18	4 2													

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
(h m s)	(d ' ")													
JUL 2	4 30 33.3	20 8 32.8	9.94009	9.08543	-14.773	0.4	16.7	-25.9	263.7	356.7	252.1	31.2W		
JUL 4	4 31 32.3	20 10 35.8	9.92261	9.08515	-15.478	0.4	16.7	-25.9	85.1	356.7	252.2	32.8W		
JUL 6	4 32 30.6	20 12 35.7	9.90433	9.08487	-16.172	0.4	16.8	-25.9	266.5	356.7	252.3	34.5W		
JUL 8	4 33 28.2	20 14 32.3	9.88526	9.08459	-16.855	0.4	16.8	-25.9	87.9	356.7	252.4	36.2W		
JUL 10	4 34 25.1	20 16 25.6	9.86540	9.08432	-17.527	0.4	16.8	-25.9	269.4	356.6	252.4	37.9W		
JUL 12	4 35 21.3	20 18 15.5	9.84478	9.08404	-18.186	0.4	16.9	-26.0	90.8	356.6	252.5	39.6W		
JUL 14	4 36 16.6	20 20 2.0	9.82340	9.08376	-18.833	0.4	16.9	-26.0	272.3	356.6	252.6	41.2W		
JUL 16	4 37 11.1	20 21 45.1	9.80128	9.08349	-19.467	0.4	17.0	-26.0	93.7	356.6	252.6	42.9W		
JUL 18	4 38 4.8	20 23 24.8	9.77843	9.08321	-20.087	0.4	17.0	-26.0	275.2	356.5	252.7	44.6W		
JUL 20	4 38 57.5	20 25 1.2	9.75488	9.08294	-20.690	0.4	17.0	-26.0	96.6	356.5	252.8	46.3W		
JUL 22	4 39 49.3	20 26 34.3	9.73064	9.08266	-21.275	0.4	17.1	-26.0	278.1	356.5	252.9	48.0W		
JUL 24	4 40 40.0	20 28 3.9	9.70574	9.08239	-21.839	0.4	17.1	-26.0	99.6	356.5	252.9	49.7W		
JUL 26	4 41 29.7	20 29 30.0	9.68020	9.08212	-22.382	0.4	17.2	-26.1	281.1	356.4	253.0	51.5W		
JUL 28	4 42 18.4	20 30 52.5	9.65404	9.08185	-22.905	0.4	17.2	-26.1	102.6	356.4	253.1	53.2W		
JUL 30	4 43 5.9	20 32 11.7	9.62729	9.08158	-23.407	0.4	17.3	-26.1	284.1	356.4	253.2	54.9W		
AUG 1	4 43 52.3	20 33 27.4	9.59998	9.08131	-23.890	0.4	17.3	-26.1	105.6	356.4	253.2	56.6W		
AUG 3	4 44 37.6	20 34 39.9	9.57211	9.08104	-24.353	0.4	17.4	-26.1	287.1	356.3	253.3	58.4W		
AUG 5	4 45 21.6	20 35 49.0	9.54373	9.08077	-24.797	0.4	17.4	-26.1	108.6	356.3	253.4	60.1W		
AUG 7	4 46 4.4	20 36 54.7	9.51484	9.08050	-25.221	0.4	17.5	-26.1	290.2	356.3	253.5	61.8W		
AUG 9	4 46 45.9	20 37 57.0	9.48547	9.08023	-25.625	0.4	17.5	-26.1	111.7	356.3	253.5	63.6W		
AUG 11	4 47 26.1	20 38 56.0	9.45565	9.07997	-26.009	0.4	17.6	-26.1	293.3	356.3	253.6	65.4W		
AUG 13	4 48 5.0	20 39 51.6	9.42539	9.07970	-26.370	0.4	17.6	-26.1	114.8	356.3	253.7	67.1W		
AUG 15	4 48 42.5	20 40 43.9	9.39474	9.07943	-26.709	0.4	17.7	-26.1	296.4	356.2	253.8	68.9W		
AUG 17	4 49 18.6	20 41 33.0	9.36370	9.07917	-27.023	0.4	17.7	-26.1	118.0	356.2	253.8	70.7W		
AUG 19	4 49 53.2	20 42 18.8	9.33232	9.07890	-27.310	0.4	17.8	-26.1	299.6	356.2	253.9	72.5W		
AUG 21	4 50 26.3	20 43 1.3	9.30062	9.07864	-27.568	0.4	17.9	-26.1	121.2	356.2	254.0	74.3W		
AUG 23	4 50 57.8	20 43 40.5	9.26864	9.07838	-27.797	0.4	17.9	-26.2	302.8	356.2	254.1	76.1W		
AUG 25	4 51 27.9	20 44 16.3	9.23642	9.07812	-27.997	0.4	18.0	-26.2	124.4	356.2	254.1	77.9W		
AUG 27	4 51 56.3	20 44 49.0	9.20398	9.07785	-28.169	0.4	18.1	-26.2	306.0	356.1	254.2	79.7W		
AUG 29	4 52 23.2	20 45 18.5	9.17135	9.07759	-28.314	0.4	18.1	-26.2	127.6	356.1	254.3	81.5W		
AUG 31	4 52 48.4	20 45 45.0	9.13858	9.07733	-28.431	0.4	18.2	-26.2	309.2	356.1	254.3	83.4W		
SEP 2	4 53 11.9	20 46 8.4	9.10568	9.07707	-28.521	0.3	18.3	-26.2	130.9	356.1	254.4	85.2W		
SEP 4	4 53 33.8	20 46 28.6	9.07270	9.07681	-28.584	0.3	18.3	-26.2	312.5	356.1	254.5	87.0W		
SEP 6	4 53 53.9	20 46 45.8	9.03966	9.07656	-28.619	0.3	18.4	-26.2	134.2	356.1	254.6	88.9W		
SEP 8	4 54 12.4	20 46 59.9	9.00659	9.07630	-28.626	0.3	18.5	-26.2	315.8	356.1	254.6	90.8W		
SEP 10	4 54 29.0	20 47 11.0	8.97354	9.07604	-28.603	0.3	18.5	-26.2	137.5	356.1	254.7	92.6W		
SEP 12	4 54 43.9	20 47 19.1	8.94052	9.07578	-28.550	0.3	18.6	-26.2	319.2	356.1	254.8	94.5W		
SEP 14	4 54 57.1	20 47 24.4	8.90759	9.07553	-28.465	0.3	18.7	-26.2	140.9	356.1	254.9	96.4W		
SEP 16	4 55 8.3	20 47 26.8	8.87478	9.07527	-28.346	0.3	18.7	-26.1	322.6	356.1	254.9	98.3W		
SEP 18	4 55 17.7	20 47 26.2	8.84212	9.07502	-28.191	0.3	18.8	-26.1	144.3	356.1	255.0	100.2W		
SEP 20	4 55 25.3	20 47 22.5	8.80967	9.07477	-28.000	0.3	18.9	-26.1	326.0	356.1	255.1	102.2W		
SEP 22	4 55 31.0	20 47 16.0	8.77745	9.07451	-27.775	0.3	18.9	-26.1	147.7	356.1	255.2	104.1W		
SEP 24	4 55 34.9	20 47 6.7	8.74551	9.07426	-27.517	0.2	19.0	-26.1	329.4	356.1	255.2	106.0W		
SEP 26	4 55 36.9	20 46 54.6	8.71389	9.07401	-27.226	0.2	19.1	-26.1	151.1	356.1	255.3	108.0W		
SEP 28	4 55 37.0	20 46 39.9	8.68263	9.07376	-26.903	0.2	19.1	-26.1	332.9	356.1	255.4	110.0W		
SEP 30	4 55 35.2	20 46 22.5	8.65175	9.07351	-26.548	0.2	19.2	-26.1	154.6	356.1	255.5	111.9W		
OCT 2	4 55 31.6	20 46 2.4	8.62131	9.07326	-26.162	0.2	19.3	-26.1	336.4	356.1	255.5	113.9W		
OCT 4	4 55 26.1	20 45 39.6	8.59132	9.07301	-25.745	0.2	19.3	-26.1	158.1	356.1	255.6	115.9W		
OCT 6	4 55 18.8	20 45 14.2	8.56184	9.07276	-25.297	0.2	19.4	-26.1	339.9	356.1	255.7	117.9W		
OCT 8	4 55 9.7	20 44 46.2	8.53289	9.07251	-24.816	0.2	19.5	-26.1	161.6	356.1	255.8	119.9W		
OCT 10	4 54 58.7	20 44 15.8	8.50452	9.07227	-24.302	0.2	19.5	-26.1	343.4	356.1	255.8	121.9W		
OCT 12	4 54 46.0	20 43 42.9	8.47676	9.07202	-23.754	0.1	19.6	-26.1	165.2	356.1	255.9	123.9W		
OCT 14	4 54 31.4	20 43 7.5	8.44966	9.07177	-23.171	0.1	19.7	-26.1	347.0	356.1	256.0	126.0W		
OCT 16	4 54 15.0	20 42 29.7	8.42325	9.07153	-22.552	0.1	19.7	-26.1	168.7	356.1	256.1	128.0W		
OCT 18	4 53 56.9	20 41 49.3	8.39757	9.07128	-21.899	0.1	19.8	-26.1	350.5	356.1	256.1	130.1W		
OCT 20	4 53 37.1	20 41 6.6	8.37267	9.07104	-21.213	0.1	19.8	-26.1	172.3	356.1	256.2	132.1W		
OCT 22	4 53 15.6	20 40 21.8	8.34857	9.07080	-20.497	0.1	19.9	-26.1	354.1	356.1	256.3	134.2W		
OCT 24	4 52 52.5	20 39 34.8	8.32532	9.07056	-19.751	0.1	20.0	-26.1	175.9	356.1	256.3	136.3W		
OCT 26	4 52 27.8	20 38 45.8	8.30295	9.07031	-18.978	0.0	20.0	-26.0	357.7	356.1	256.4	138.4W		
OCT 28	4 52 1.6	20 37 54.6	8.28149	9.07007	-18.178	0.0	20.1	-26.0	179.5	356.1	256.5	140.5W		
OCT 30	4 51 33.9	20 37 1.5	8.26097	9.06983	-17.353	0.0	20.1	-26.0	1.3	356.2	256.6	142.6W		
NOV 1	4 51 4.8	20 36 6.5	8.24141	9.06959	-16.503	0.0	20.2	-26.0	183.1	356.2	256.6	144.7W		
NOV 3	4 50 34.4	20 35 9.6	8.22285	9.06936	-15.629	0.0	20.2	-26.0	4.9	356.2	256.7	146.8W		
NOV 5	4 50 2.7	20 34 11.0	8.20531	9.06912	-14.731	0.0	20.3	-26.0	186.7	356.2	256.8	148.9W		
NOV 7	4 49 29.7	20 33 10.9	8.18882	9.06888	-13.809	0.0	20.3	-26.0	8.5	356.2	256.9	151.1W		
NOV 9	4 48 55.6	20 32 9.2	8.17342	9.06864	-12.863	0.0	20.3	-26.0	190.4	356.2	256.9	153.2W		
NOV 11	4 48 20.3	20 31 6.1	8.15912	9.06841	-11.893	-0.1	20.4	-26.0	12.2	356.2	257.0	155.3W		
NOV 13	4 47 44.0	20 30 1.5	8.14595	9.06817	-10.901	-0.1	20.4	-26.0	194.0	356.3	257.1	157.5W		
NOV 15	4 47 6.7	20 28 55.6	8.13394	9.06794	-9.888	-0.1	20.4	-26.0	15.8	356.3	257.2	159.6W		
NOV 17	4 46 28.7	20 27 48.6	8.12311	9.06770	-8.857	-0.1	20.5	-26.0	197.6	356.3	257.2	161.8W		
NOV 19	4 45 49.8	20 26 40.7	8.11348	9.06747	-7.812	-0.1	20.5	-25.9	19.4	356.3	257.3	164.0W		
NOV 21	4 45 10.3	20 25 32.2	8.10506	9.06724	-6.755	-0.1	20.5	-25.9	201.2	356.3	257.4	166.1W		
NOV 23	4 44 30.1	20 24 23.0	8.09787	9.06701	-5.688	-0.1	20.5	-25.9	23.0	356.4	257.5	168.3W		
NOV 25	4 43 49.5	20 23 13.3	8.09192	9.06677	-4.613	-0.1	20.5	-25.9	204.8	356.4	257.5	170.4W		
NOV 27	4 43 8.4	20 22 3.2	8.08722	9.06654	-3.532	-0.2	20.6	-25.9	26.6	356.4	257.6	172.5W		
NOV 29	4 42 27.1	20 20 52.9	8.08376	9.06631	-2.446	-0.2	20.6	-25.9	208.3	356.4	257.7	174.6W		
DEC 1	4 41 45.6	20 19 42.6	8.08156	9.06608	-1.356	-0.2	20.6	-25.9	30.1	356.4	257.8	176.6W		
DEC 3	4 41 3.9	20 18 32.5	8.08063	9.06586	-0.264	-0.2	20.6	-25.9	211.9	356.4	257.8	178.0W		
DEC 5	4 40 22.2	20 17 22.8	8.08095	9.06563	0.831	-0.2	20.6	-25.9	33.7	356.5	257.9	177.6E		
DEC 7	4 39 40.6	20 16 13.7	8.08254	9.06540	1.927	-0.2	20.6	-25.9	215.4	356.5	258.0	175.8E		
DEC 9	4 38 59.1	20 15 5.1	8.08540	9.06518	3.024	-0.2	20.6	-25.9	37.2	356.5	258.1	173.8E		
DEC 11	4 38 17.8	20 13 57.3	8.08952	9.06495	4.119	-0.2	20.5	-25.8	218.9	356.5	258.1	171.7E		
DEC 13	4 37 36.9	20 12 50.5	8.09491	9.06473	5.210	-0.1	20.5	-25.8	40.7	356.5	258.2	169.5E		
DEC 15	4 36 56.4	20 11 45.0	8.10155	9.06450	6.293	-0.1	20.5	-25.8						

Date (0 DT)	RA (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	4 31 27.6	20 3 25.8	8.21526	9.06252	15.334	0.0	20.2	-25.8	57.6	356.7	258.9	147.8E
JAN 4	4 30 56.5	20 2 43.6	8.23349	9.06230	16.239	0.0	20.2	-25.8	239.2	356.7	259.0	145.7E
JAN 6	4 30 26.6	20 2 4.5	8.25276	9.06208	17.122	0.0	20.1	-25.8	60.9	356.7	259.1	143.5E
JAN 8	4 29 58.2	20 1 28.6	8.27304	9.06187	17.981	0.0	20.1	-25.8	242.5	356.8	259.2	141.4E
JAN 10	4 29 31.2	20 0 56.3	8.29429	9.06165	18.813	0.0	20.0	-25.8	64.1	356.8	259.2	139.2E
JAN 12	4 29 5.8	20 0 27.7	8.31648	9.06144	19.617	0.1	20.0	-25.7	245.7	356.8	259.3	137.1E
JAN 14	4 28 41.9	20 0 2.9	8.33959	9.06122	20.390	0.1	19.9	-25.7	67.3	356.8	259.4	135.0E
JAN 16	4 28 19.7	19 59 42.1	8.36358	9.06101	21.131	0.1	19.9	-25.7	248.8	356.8	259.5	132.8E
JAN 18	4 27 59.1	19 59 25.3	8.38839	9.06080	21.838	0.1	19.8	-25.7	70.4	356.8	259.5	130.7E
JAN 20	4 27 40.2	19 59 12.5	8.41401	9.06059	22.511	0.1	19.8	-25.7	252.0	356.8	259.6	128.6E
JAN 22	4 27 23.1	19 59 3.9	8.44038	9.06038	23.150	0.1	19.7	-25.7	73.5	356.8	259.7	126.5E
JAN 24	4 27 7.8	19 58 59.5	8.46747	9.06017	23.753	0.1	19.6	-25.8	255.0	356.8	259.8	124.4E
JAN 26	4 26 54.3	19 58 59.4	8.49524	9.05996	24.323	0.1	19.6	-25.8	76.5	356.8	259.8	122.3E
JAN 28	4 26 42.6	19 59 3.8	8.52365	9.05975	24.859	0.2	19.5	-25.8	258.0	356.8	259.9	120.3E
JAN 30	4 26 32.8	19 59 12.5	8.55266	9.05954	25.362	0.2	19.4	-25.8	79.5	356.9	260.0	118.2E
FEB 1	4 26 24.8	19 59 25.6	8.58223	9.05933	25.834	0.2	19.4	-25.8	261.0	356.9	260.1	116.1E
FEB 3	4 26 18.7	19 59 42.8	8.61232	9.05913	26.273	0.2	19.3	-25.8	82.5	356.9	260.1	114.1E
FEB 5	4 26 14.4	20 0 4.5	8.64291	9.05892	26.679	0.2	19.2	-25.8	264.0	356.9	260.2	112.0E
FEB 7	4 26 12.1	20 0 30.5	8.67394	9.05872	27.051	0.2	19.2	-25.8	85.4	356.9	260.3	110.0E
FEB 9	4 26 11.7	20 1 1.0	8.70539	9.05851	27.386	0.2	19.1	-25.8	266.9	356.9	260.4	108.0E
FEB 11	4 26 13.2	20 1 35.9	8.73720	9.05831	27.684	0.2	19.0	-25.8	88.3	356.9	260.4	106.0E
FEB 13	4 26 16.6	20 2 15.1	8.76933	9.05811	27.945	0.3	19.0	-25.8	269.7	356.9	260.5	104.0E
FEB 15	4 26 21.9	20 2 58.6	8.80174	9.05790	28.169	0.3	18.9	-25.8	91.1	356.9	260.6	102.0E
FEB 17	4 26 29.1	20 3 46.2	8.83439	9.05770	28.355	0.3	18.8	-25.8	272.5	356.9	260.7	100.0E
FEB 19	4 26 38.2	20 4 38.0	8.86723	9.05750	28.506	0.3	18.7	-25.9	93.9	356.8	260.7	98.0E
FEB 21	4 26 49.3	20 5 33.9	8.90023	9.05730	28.621	0.3	18.7	-25.9	275.3	356.8	260.8	96.0E
FEB 23	4 27 2.1	20 6 33.8	8.93334	9.05710	28.701	0.3	18.6	-25.9	96.7	356.8	260.9	94.1E
FEB 25	4 27 16.9	20 7 37.7	8.96652	9.05690	28.748	0.3	18.5	-25.9	278.0	356.8	260.9	92.1E
FEB 27	4 27 33.4	20 8 45.3	8.99974	9.05671	28.765	0.3	18.5	-25.9	99.4	356.8	261.0	90.2E
MAR 1	4 27 51.7	20 9 56.6	9.03296	9.05651	28.752	0.3	18.4	-25.9	280.8	356.8	261.1	88.2E
MAR 3	4 28 11.9	20 11 11.3	9.06615	9.05631	28.709	0.3	18.3	-25.9	102.1	356.8	261.2	86.3E
MAR 5	4 28 33.7	20 12 29.4	9.09927	9.05612	28.637	0.3	18.3	-26.0	283.4	356.8	261.2	84.4E
MAR 7	4 28 57.4	20 13 51.0	9.13229	9.05592	28.532	0.3	18.2	-26.0	104.8	356.8	261.3	82.5E
MAR 9	4 29 22.8	20 15 15.8	9.16518	9.05573	28.396	0.3	18.1	-26.0	286.1	356.8	261.4	80.6E
MAR 11	4 29 49.8	20 16 43.8	9.19788	9.05553	28.228	0.4	18.1	-26.0	107.4	356.8	261.5	78.7E
MAR 13	4 30 18.5	20 18 14.8	9.23038	9.05534	28.029	0.4	18.0	-26.0	288.7	356.7	261.5	76.8E
MAR 15	4 30 48.9	20 19 48.6	9.26262	9.05515	27.798	0.4	17.9	-26.0	110.0	356.7	261.6	74.9E
MAR 17	4 31 20.8	20 21 25.0	9.29458	9.05496	27.537	0.4	17.9	-26.1	291.3	356.7	261.7	73.1E
MAR 19	4 31 54.4	20 23 4.0	9.32623	9.05477	27.246	0.4	17.8	-26.1	112.6	356.7	261.8	71.2E
MAR 21	4 32 29.5	20 24 45.5	9.35752	9.05458	26.928	0.4	17.8	-26.1	293.9	356.7	261.8	69.4E
MAR 23	4 33 6.1	20 26 29.2	9.38843	9.05439	26.584	0.4	17.7	-26.1	115.2	356.7	261.9	67.5E
MAR 25	4 33 44.2	20 28 15.2	9.41892	9.05420	26.215	0.4	17.6	-26.1	296.4	356.6	262.0	65.7E
MAR 27	4 34 23.7	20 30 3.1	9.44898	9.05401	25.823	0.4	17.6	-26.2	117.7	356.6	262.1	63.9E
MAR 29	4 35 4.5	20 31 52.7	9.47857	9.05382	25.411	0.4	17.5	-26.2	299.0	356.6	262.1	62.1E
MAR 31	4 35 46.8	20 33 43.8	9.50768	9.05364	24.978	0.4	17.5	-26.2	120.3	356.6	262.2	60.3E
APR 2	4 36 30.4	20 35 36.5	9.53627	9.05345	24.523	0.4	17.4	-26.2	301.5	356.6	262.3	58.5E
APR 4	4 37 15.2	20 37 30.6	9.56432	9.05327	24.046	0.4	17.4	-26.3	122.8	356.5	262.4	56.7E
APR 6	4 38 1.4	20 39 26.0	9.59181	9.05308	23.546	0.4	17.3	-26.3	304.0	356.5	262.4	54.9E
APR 8	4 38 48.8	20 41 22.6	9.61871	9.05290	23.023	0.4	17.3	-26.3	125.3	356.5	262.5	53.1E
APR 10	4 39 37.3	20 43 20.1	9.64500	9.05272	22.479	0.4	17.2	-26.3	306.5	356.5	262.6	51.3E
APR 12	4 40 27.0	20 45 18.3	9.67064	9.05254	21.913	0.4	17.2	-26.3	127.8	356.5	262.7	49.6E
APR 14	4 41 17.9	20 47 17.2	9.69561	9.05235	21.327	0.4	17.1	-26.4	309.0	356.4	262.7	47.8E
APR 16	4 42 9.8	20 49 16.6	9.71990	9.05217	20.722	0.4	17.1	-26.4	130.3	356.4	262.8	46.0E
APR 18	4 43 2.8	20 51 16.4	9.74348	9.05199	20.099	0.4	17.1	-26.4	311.5	356.4	262.9	44.3E
APR 20	4 43 56.7	20 53 16.5	9.76633	9.05182	19.460	0.4	17.0	-26.4	132.8	356.4	263.0	42.6E
APR 22	4 44 51.7	20 55 16.8	9.78843	9.05164	18.806	0.4	17.0	-26.4	314.0	356.3	263.0	40.8E
APR 24	4 45 47.5	20 57 16.9	9.80977	9.05146	18.141	0.4	16.9	-26.5	135.3	356.3	263.1	39.1E
APR 26	4 46 44.2	20 59 16.8	9.83034	9.05128	17.464	0.4	16.9	-26.5	316.5	356.3	263.2	37.4E
APR 28	4 47 41.7	21 1 16.3	9.85011	9.05111	16.776	0.4	16.9	-26.5	137.7	356.3	263.3	35.6E
APR 30	4 48 40.1	21 3 15.4	9.86909	9.05093	16.077	0.4	16.8	-26.5	319.0	356.2	263.3	33.9E
MAY 2	4 49 39.2	21 5 14.1	9.88725	9.05076	15.364	0.4	16.8	-26.5	140.2	356.2	263.4	32.2E
MAY 4	4 50 39.1	21 7 12.2	9.90458	9.05058	14.639	0.4	16.8	-26.5	321.5	356.2	263.5	30.5E
MAY 6	4 51 39.7	21 9 9.5	9.92107	9.05041	13.901	0.4	16.8	-26.6	142.7	356.1	263.6	28.8E
MAY 8	4 52 40.9	21 11 6.0	9.93669	9.05024	13.150	0.4	16.7	-26.6	324.0	356.1	263.6	27.1E
MAY 10	4 53 42.8	21 13 1.4	9.95144	9.05007	12.388	0.4	16.7	-26.6	145.2	356.1	263.7	25.4E
MAY 12	4 54 45.3	21 14 55.7	9.96531	9.04989	11.615	0.4	16.7	-26.6	326.5	356.1	263.8	23.8E
MAY 14	4 55 48.3	21 16 48.9	9.97828	9.04972	10.833	0.4	16.7	-26.6	147.7	356.0	263.8	22.1E
MAY 16	4 56 51.8	21 18 40.8	9.99033	9.04956	10.043	0.3	16.6	-26.6	329.0	356.0	263.9	20.4E
MAY 18	4 57 55.9	21 20 31.5	10.00148	9.04939	9.247	0.3	16.6	-26.7	150.2	356.0	264.0	18.7E
MAY 20	4 59 0.3	21 22 20.7	10.01170	9.04922	8.446	0.3	16.6	-26.7	331.5	355.9	264.1	17.1E
MAY 22	5 0 5.1	21 24 8.2	10.02099	9.04905	7.642	0.3	16.6	-26.7	152.8	355.9	264.1	15.4E
MAY 24	5 1 10.3	21 25 54.0	10.02935	9.04888	6.836	0.3	16.6	-26.7	334.0	355.9	264.2	13.7E
MAY 26	5 2 15.8	21 27 38.1	10.03678	9.04872	6.028	0.3	16.6	-26.7	155.3	355.9	264.3	12.1E
MAY 28	5 3 21.6	21 29 20.3	10.04328	9.04855	5.216	0.3	16.5	-26.7	336.6	355.8	264.4	10.4E
MAY 30	5 4 27.7	21 31 0.9	10.04883	9.04839	4.401	0.3	16.5	-26.7	157.8	355.8	264.4	8.8E
JUN 1	5 5 34.0	21 32 39.6	10.05345	9.04823	3.581	0.3	16.5	-26.7	339.1	355.8	264.5	7.1E
JUN 3	5 6 40.4	21 34 16.3	10.05711	9.04806	2.758	0.3	16.5	-26.7	160.4	355.7	264.6	5.5E
JUN 5	5 7 47.0	21 35 56.9	10.05982	9.04790	1.931	0.3	16.5	-26.7	341.7	355.7	264.7	3.9E
JUN 7	5 8 53.7	21 37 23.4	10.06157	9.04774	1.101	0.3	16.5	-26.7	163.0	355.7	264.7	2.4E
JUN 9	5 10 0.5	21 38 53.8	10.06236	9.04758	0.269	0.3	16.5	-26.8	344.3	355.7	264.8	1.3E
JUN 11	5 11 7.4	21 40 22.0	10.06219	9.04742	-0.564	0.3	16.5	-26.8	165.5	355.6	264.9	1.8W
JUN 13	5 12 14.3	21 41 48.1	10.06106	9.04726	-1.396	0.3	16.5	-26.8	346.9	355.6	265.0	3.2W
JUN 15	5 13 21.1	21 43 11.9	10.05897	9.04710	-2.225	0.3	16.5	-26.8	168.2	355.6	265.0	4.7W
JUN 17	5 14 27.8	21 44 33.4	10.05593	9.04695	-3.050	0.3	16.5	-26.8	349.5	355.5	265.1	6.3W
JUN 19	5 15 34.4	21 45 52.5	10.05193	9.04679	-3.869	0.3</						

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 1	5 22 9.6	21 52 56.8	10.00836	9.04586	-8.680	0.3	16.6	-26.8	178.8	355.4	265.6	17.8W	
JUL 3	5 23 14.4	21 53 59.1	9.99788	9.04571	-9.467	0.3	16.6	-26.8	0.2	355.3	265.7	19.5W	
JUL 5	5 24 18.8	21 54 59.0	9.98649	9.04556	-10.248	0.3	16.6	-26.8	181.5	355.3	265.8	21.1W	
JUL 7	5 25 22.8	21 55 56.4	9.97421	9.04541	-11.023	0.4	16.7	-26.8	2.9	355.3	265.9	22.8W	
JUL 9	5 26 26.3	21 56 51.4	9.96103	9.04526	-11.791	0.4	16.7	-26.8	184.3	355.3	265.9	24.4W	
JUL 11	5 27 29.3	21 57 44.1	9.94698	9.04511	-12.549	0.4	16.7	-26.7	5.6	355.2	266.0	26.1W	
JUL 13	5 28 31.7	21 58 34.4	9.93205	9.04497	-13.297	0.4	16.7	-26.7	187.0	355.2	266.1	27.8W	
JUL 15	5 29 33.6	21 59 22.3	9.91627	9.04482	-14.032	0.4	16.8	-26.7	8.4	355.2	266.2	29.4W	
JUL 17	5 30 34.8	22 0 7.8	9.89964	9.04467	-14.753	0.4	16.8	-26.7	189.8	355.2	266.2	31.1W	
JUL 19	5 31 35.3	22 0 50.8	9.88219	9.04453	-15.461	0.4	16.8	-26.7	11.2	355.1	266.3	32.8W	
JUL 21	5 32 35.2	22 1 31.6	9.86393	9.04438	-16.155	0.4	16.8	-26.7	192.6	355.1	266.4	34.5W	
JUL 23	5 33 34.3	22 2 10.1	9.84487	9.04424	-16.837	0.4	16.9	-26.7	14.1	355.1	266.5	36.1W	
JUL 25	5 34 32.6	22 2 46.5	9.82504	9.04410	-17.506	0.4	16.9	-26.7	195.5	355.1	266.5	37.8W	
JUL 27	5 35 30.1	22 3 20.8	9.80444	9.04395	-18.164	0.4	17.0	-26.7	16.9	355.0	266.6	39.5W	
JUL 29	5 36 26.8	22 3 52.8	9.78308	9.04381	-18.810	0.4	17.0	-26.7	198.4	355.0	266.7	41.2W	
JUL 31	5 37 22.6	22 4 22.7	9.76099	9.04367	-19.442	0.4	17.0	-26.7	19.8	355.0	266.8	42.9W	
AUG 2	5 38 17.5	22 4 50.5	9.73817	9.04353	-20.061	0.4	17.1	-26.6	201.3	355.0	266.8	44.6W	
AUG 4	5 39 11.4	22 5 16.3	9.71465	9.04339	-20.666	0.4	17.1	-26.6	22.7	355.0	266.9	46.3W	
AUG 6	5 40 4.4	22 5 40.1	9.69044	9.04325	-21.254	0.4	17.2	-26.6	204.2	354.9	267.0	48.0W	
AUG 8	5 40 56.3	22 6 2.1	9.66556	9.04312	-21.825	0.4	17.2	-26.6	25.7	354.9	267.1	49.7W	
AUG 10	5 41 47.1	22 6 22.3	9.64003	9.04298	-22.376	0.4	17.2	-26.6	207.2	354.9	267.1	51.4W	
AUG 12	5 42 36.8	22 6 40.6	9.61388	9.04284	-22.906	0.4	17.3	-26.6	28.7	354.9	267.2	53.2W	
AUG 14	5 43 25.4	22 6 57.1	9.58712	9.04271	-23.414	0.4	17.3	-26.6	210.2	354.9	267.3	54.9W	
AUG 16	5 44 12.7	22 7 11.7	9.55980	9.04257	-23.899	0.4	17.4	-26.6	31.7	354.9	267.4	56.6W	
AUG 18	5 44 58.9	22 7 24.8	9.53192	9.04244	-24.363	0.4	17.4	-26.6	213.2	354.8	267.4	58.4W	
AUG 20	5 45 43.7	22 7 36.5	9.50352	9.04230	-24.807	0.4	17.5	-26.5	34.7	354.8	267.5	60.1W	
AUG 22	5 46 27.3	22 7 46.7	9.47462	9.04217	-25.230	0.4	17.5	-26.5	216.3	354.8	267.6	61.9W	
AUG 24	5 47 9.6	22 7 55.4	9.44524	9.04204	-25.632	0.4	17.6	-26.5	37.8	354.8	267.6	63.7W	
AUG 26	5 47 50.5	22 8 2.8	9.41541	9.04191	-26.014	0.4	17.7	-26.5	219.4	354.8	267.7	65.4W	
AUG 28	5 48 30.0	22 8 8.8	9.38516	9.04178	-26.374	0.4	17.7	-26.5	40.9	354.8	267.8	67.2W	
AUG 30	5 49 8.1	22 8 13.6	9.35450	9.04165	-26.711	0.4	17.8	-26.5	222.5	354.8	267.9	69.0W	
SEP 1	5 49 44.7	22 8 17.2	9.32346	9.04152	-27.026	0.4	17.8	-26.5	44.1	354.7	267.9	70.8W	
SEP 3	5 50 19.8	22 8 19.8	9.29207	9.04139	-27.315	0.4	17.9	-26.5	225.7	354.7	268.0	72.6W	
SEP 5	5 50 53.4	22 8 21.5	9.26037	9.04127	-27.578	0.4	17.9	-26.4	47.3	354.7	268.1	74.4W	
SEP 7	5 51 25.4	22 8 22.2	9.22837	9.04114	-27.813	0.4	18.0	-26.4	228.9	354.7	268.2	76.2W	
SEP 9	5 51 55.8	22 8 21.9	9.19612	9.04101	-28.017	0.3	18.1	-26.4	50.5	354.7	268.2	78.0W	
SEP 11	5 52 24.5	22 8 20.7	9.16366	9.04089	-28.191	0.3	18.1	-26.4	232.1	354.7	268.3	79.9W	
SEP 13	5 52 51.6	22 8 18.6	9.13101	9.04077	-28.334	0.3	18.2	-26.4	53.7	354.7	268.4	81.7W	
SEP 15	5 53 17.0	22 8 16.0	9.09821	9.04064	-28.447	0.3	18.3	-26.4	235.3	354.7	268.5	83.5W	
SEP 17	5 53 40.7	22 8 12.8	9.06530	9.04052	-28.532	0.3	18.3	-26.4	57.0	354.7	268.5	85.4W	
SEP 19	5 54 2.6	22 8 9.2	9.03231	9.04040	-28.589	0.3	18.4	-26.4	238.6	354.7	268.6	87.3W	
SEP 21	5 54 22.8	22 8 4.9	8.99927	9.04028	-28.617	0.3	18.5	-26.4	60.3	354.6	268.7	89.1W	
SEP 23	5 54 41.2	22 8 0.2	8.96621	9.04016	-28.617	0.3	18.5	-26.4	241.9	354.6	268.8	91.0W	
SEP 25	5 54 57.7	22 7 55.1	8.93317	9.04004	-28.587	0.3	18.6	-26.4	63.6	354.6	268.8	92.9W	
SEP 27	5 55 12.5	22 7 49.6	8.90018	9.03992	-28.527	0.3	18.7	-26.3	245.3	354.6	268.9	94.8W	
SEP 29	5 55 25.4	22 7 43.8	8.86728	9.03980	-28.436	0.3	18.7	-26.3	67.0	354.6	269.0	96.7W	
OCT 1	5 55 36.5	22 7 37.9	8.83450	9.03968	-28.313	0.3	18.8	-26.3	248.7	354.6	269.1	98.7W	
OCT 3	5 55 45.6	22 7 31.8	8.80188	9.03957	-28.156	0.3	18.9	-26.3	70.4	354.6	269.1	100.6W	
OCT 5	5 55 52.8	22 7 25.6	8.76947	9.03945	-27.964	0.2	19.0	-26.3	252.1	354.6	269.2	102.5W	
OCT 7	5 55 58.2	22 7 19.1	8.73730	9.03934	-27.735	0.2	19.0	-26.3	73.8	354.6	269.3	104.5W	
OCT 9	5 56 1.6	22 7 12.4	8.70541	9.03922	-27.469	0.2	19.1	-26.3	255.5	354.6	269.4	106.4W	
OCT 11	5 56 3.0	22 7 5.6	8.67385	9.03911	-27.168	0.2	19.2	-26.3	77.3	354.6	269.4	108.4W	
OCT 13	5 56 2.6	22 6 59.0	8.64266	9.03900	-26.833	0.2	19.2	-26.3	259.0	354.6	269.5	110.4W	
OCT 15	5 56 0.2	22 6 52.4	8.61187	9.03889	-26.465	0.2	19.3	-26.3	80.7	354.6	269.6	112.4W	
OCT 17	5 55 55.9	22 6 45.8	8.58153	9.03877	-26.065	0.2	19.4	-26.3	262.5	354.6	269.7	114.4W	
OCT 19	5 55 49.7	22 6 39.3	8.55167	9.03866	-25.632	0.2	19.4	-26.3	84.2	354.6	269.7	116.4W	
OCT 21	5 55 41.7	22 6 32.7	8.52232	9.03855	-25.168	0.2	19.5	-26.3	266.0	354.6	269.8	118.4W	
OCT 23	5 55 31.7	22 6 26.1	8.49354	9.03845	-24.672	0.1	19.6	-26.3	87.8	354.6	269.9	120.4W	
OCT 25	5 55 19.9	22 6 19.6	8.46534	9.03834	-24.144	0.1	19.6	-26.3	269.5	354.6	270.0	122.5W	
OCT 27	5 55 6.2	22 6 13.2	8.43777	9.03823	-23.583	0.1	19.7	-26.3	91.3	354.6	270.0	124.5W	
OCT 29	5 54 50.7	22 6 7.0	8.41087	9.03812	-22.990	0.1	19.8	-26.3	273.1	354.6	270.1	126.6W	
OCT 31	5 54 33.4	22 6 0.8	8.38467	9.03802	-22.362	0.1	19.8	-26.3	94.9	354.6	270.2	128.6W	
NOV 2	5 54 14.3	22 5 54.6	8.35922	9.03791	-21.700	0.1	19.9	-26.3	276.7	354.6	270.3	130.7W	
NOV 4	5 53 53.5	22 5 48.3	8.33455	9.03781	-21.003	0.1	19.9	-26.3	98.5	354.7	270.3	132.8W	
NOV 6	5 53 30.9	22 5 42.0	8.31071	9.03771	-20.273	0.0	20.0	-26.3	280.3	354.7	270.4	134.9W	
NOV 8	5 53 6.7	22 5 35.7	8.28773	9.03760	-19.510	0.0	20.1	-26.4	102.1	354.7	270.5	137.0W	
NOV 10	5 52 41.0	22 5 29.5	8.26564	9.03750	-18.719	0.0	20.1	-26.4	283.9	354.7	270.6	139.1W	
NOV 12	5 52 13.6	22 5 23.4	8.24449	9.03740	-17.900	0.0	20.2	-26.4	105.7	354.7	270.6	141.2W	
NOV 14	5 51 44.7	22 5 17.2	8.22430	9.03730	-17.056	0.0	20.2	-26.4	287.5	354.7	270.7	143.3W	
NOV 16	5 51 14.4	22 5 11.0	8.20509	9.03720	-16.188	0.0	20.3	-26.4	109.3	354.7	270.8	145.5W	
NOV 18	5 50 42.8	22 5 4.6	8.18691	9.03710	-15.295	0.0	20.3	-26.4	291.1	354.7	270.9	147.6W	
NOV 20	5 50 9.8	22 4 58.1	8.16976	9.03700	-14.381	0.0	20.3	-26.4	112.9	354.7	270.9	149.7W	
NOV 22	5 49 35.6	22 4 51.5	8.15369	9.03691	-13.444	-0.1	20.4	-26.4	294.7	354.7	271.0	151.9W	
NOV 24	5 49 0.2	22 4 44.9	8.13871	9.03681	-12.486	-0.1	20.4	-26.4	116.5	354.8	271.1	154.0W	
NOV 26	5 48 23.8	22 4 38.2	8.12485	9.03671	-11.507	-0.1	20.5	-26.4	298.3	354.8	271.2	156.2W	
NOV 28	5 47 46.3	22 4 31.4	8.11213	9.03662	-10.507	-0.1	20.5	-26.4	120.1	354.8	271.2	158.4W	
NOV 30	5 47 7.8	22 4 24.3	8.10058	9.03653	-9.486	-0.1	20.5	-26.5	301.9	354.8	271.3	160.5W	
DEC 2	5 46 28.5	22 4 17.0	8.09022	9.03643	-8.447	-0.1	20.5	-26.5	123.7	354.8	271.4	162.7W	
DEC 4	5 45 48.5	22 4 9.5	8.08107	9.03634	-7.391	-0.1	20.6	-26.5	305.5	354.8	271.5	164.9W	
DEC 6	5 45 7.7	22 4 1.9	8.07315	9.03625	-6.321	-0.2	20.6	-26.5	127.3	354.8	271.5	167.1W	
DEC 8	5 44 26.4	22 3 54.3	8.06647	9.03616	-5.241	-0.2	20.6	-26.5	309.1	354.9	271.6	169.2W	
DEC 10	5 43 44.7	22 3 46.7	8.06105	9.03607	-4.153	-0.2	20.6	-26.5	130.9	354.9	271.7	171.4W	
DEC 12	5 43 2.5	22 3 38.9	8.05688	9.03598	-3.060	-0.2	20.6	-26.5	312.7	354.9	271.8	173.6W	
DEC 14	5 42 20.0	22 3 31.1	8.05397	9.03589	-1.964	-0.2	20.6	-26.5	134.5	354.9	271.8	175.7W	
DEC 16	5 41 37.4	22 3 23.1	8.05234	9.03580	-0.866	-0.2	20.6	-26.6	316.3	354.9			

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	5 36 1.7	22 2 23.2	8.08477	9.03512	7.846	-0.1	20.6	-26.7	330.3	355.0	272.5	164.3E	
JAN 3	5 35 21.9	22 2 16.9	8.09444	9.03504	8.905	-0.1	20.5	-26.7	152.0	355.1	272.6	162.1E	
JAN 5	5 34 42.8	22 2 11.2	8.10533	9.03496	9.947	-0.1	20.5	-26.7	333.7	355.1	272.7	159.9E	
JAN 7	5 34 4.6	22 2 6.1	8.11741	9.03488	10.972	-0.1	20.5	-26.7	155.4	355.1	272.7	157.7E	
JAN 9	5 33 27.3	22 2 1.7	8.13067	9.03480	11.977	-0.1	20.4	-26.7	337.1	355.1	272.8	155.5E	
JAN 11	5 32 51.1	22 1 57.9	8.14507	9.03473	12.960	-0.1	20.4	-26.7	158.8	355.1	272.9	153.4E	
JAN 13	5 32 16.0	22 1 54.8	8.16059	9.03465	13.921	-0.1	20.4	-26.7	340.4	355.1	272.9	151.2E	
JAN 15	5 31 42.2	22 1 52.6	8.17722	9.03457	14.859	0.0	20.3	-26.7	162.1	355.1	273.0	149.0E	
JAN 17	5 31 9.6	22 1 51.5	8.19491	9.03450	15.772	0.0	20.3	-26.7	343.7	355.1	273.1	146.9E	
JAN 19	5 30 38.4	22 1 51.4	8.21364	9.03442	16.661	0.0	20.2	-26.8	165.4	355.2	273.2	144.7E	
JAN 21	5 30 8.6	22 1 52.4	8.23339	9.03435	17.526	0.0	20.2	-26.8	347.0	355.2	273.2	142.6E	
JAN 23	5 29 40.2	22 1 54.5	8.25412	9.03427	18.367	0.0	20.1	-26.8	168.6	355.2	273.3	140.4E	
JAN 25	5 29 13.4	22 1 57.7	8.27581	9.03420	19.182	0.0	20.1	-26.8	350.2	355.2	273.4	138.3E	
JAN 27	5 28 48.1	22 2 2.1	8.29842	9.03413	19.971	0.0	20.0	-26.8	171.8	355.2	273.5	136.1E	
JAN 29	5 28 24.5	22 2 7.8	8.32193	9.03406	20.730	0.0	20.0	-26.8	353.4	355.2	273.5	134.0E	
JAN 31	5 28 2.6	22 2 15.1	8.34630	9.03399	21.459	0.1	19.9	-26.8	174.9	355.2	273.6	131.9E	
FEB 2	5 27 42.4	22 2 23.9	8.37149	9.03392	22.154	0.1	19.9	-26.8	356.5	355.2	273.7	129.8E	
FEB 4	5 27 23.9	22 2 34.2	8.39746	9.03385	22.814	0.1	19.8	-26.8	178.0	355.2	273.8	127.7E	
FEB 6	5 27 7.3	22 2 45.9	8.42418	9.03378	23.440	0.1	19.7	-26.8	359.6	355.2	273.8	125.6E	
FEB 8	5 26 52.5	22 2 59.2	8.45159	9.03372	24.029	0.1	19.7	-26.8	181.1	355.2	273.9	123.5E	
FEB 10	5 26 39.6	22 3 14.0	8.47967	9.03365	24.584	0.1	19.6	-26.9	2.6	355.2	274.0	121.4E	
FEB 12	5 26 28.6	22 3 30.5	8.50837	9.03358	25.102	0.1	19.5	-26.9	184.1	355.3	274.1	119.4E	
FEB 14	5 26 19.5	22 3 48.6	8.53765	9.03352	25.586	0.1	19.5	-26.9	5.6	355.3	274.1	117.3E	
FEB 16	5 26 12.3	22 4 8.5	8.56747	9.03345	26.036	0.2	19.4	-26.9	187.1	355.3	274.2	115.3E	
FEB 18	5 26 7.1	22 4 29.9	8.59779	9.03339	26.454	0.2	19.3	-26.9	8.5	355.3	274.3	113.2E	
FEB 20	5 26 3.7	22 4 52.9	8.62857	9.03333	26.839	0.2	19.3	-26.9	190.0	355.3	274.4	111.2E	
FEB 22	5 26 2.3	22 5 17.4	8.65977	9.03327	27.192	0.2	19.2	-26.9	11.5	355.3	274.4	109.2E	
FEB 24	5 26 2.9	22 5 43.4	8.69137	9.03321	27.511	0.2	19.1	-26.9	192.9	355.3	274.5	107.2E	
FEB 26	5 26 5.4	22 6 11.1	8.72332	9.03315	27.796	0.2	19.1	-26.9	14.3	355.3	274.6	105.2E	
FEB 28	5 26 9.9	22 6 40.4	8.75557	9.03309	28.046	0.2	19.0	-26.9	195.7	355.3	274.7	103.2E	
MAR 2	5 26 16.3	22 7 11.3	8.78809	9.03303	28.258	0.2	18.9	-26.9	17.1	355.3	274.7	101.2E	
MAR 4	5 26 24.6	22 7 43.6	8.82084	9.03297	28.434	0.2	18.8	-26.9	198.5	355.2	274.8	99.2E	
MAR 6	5 26 34.9	22 8 17.3	8.85377	9.03291	28.574	0.3	18.8	-26.9	19.9	355.2	274.9	97.3E	
MAR 8	5 26 47.1	22 8 52.3	8.88684	9.03286	28.678	0.3	18.7	-26.9	201.3	355.2	275.0	95.3E	
MAR 10	5 27 1.2	22 9 28.6	8.92000	9.03280	28.746	0.3	18.6	-26.9	22.7	355.2	275.0	93.4E	
MAR 12	5 27 17.2	22 10 6.2	8.95323	9.03275	28.781	0.3	18.6	-27.0	204.0	355.2	275.1	91.4E	
MAR 14	5 27 35.1	22 10 45.1	8.98648	9.03269	28.783	0.3	18.5	-27.0	25.4	355.2	275.2	89.5E	
MAR 16	5 27 54.7	22 11 25.1	9.01971	9.03264	28.754	0.3	18.4	-27.0	206.7	355.2	275.3	87.6E	
MAR 18	5 28 16.2	22 12 6.1	9.05290	9.03259	28.696	0.3	18.4	-27.0	28.1	355.2	275.3	85.7E	
MAR 20	5 28 39.5	22 12 47.9	9.08600	9.03254	28.610	0.3	18.3	-27.0	209.4	355.2	275.4	83.8E	
MAR 22	5 29 4.5	22 13 30.5	9.11898	9.03249	28.495	0.3	18.2	-27.0	30.7	355.2	275.5	81.9E	
MAR 24	5 29 31.2	22 14 13.9	9.15182	9.03244	28.352	0.3	18.2	-27.0	212.1	355.2	275.6	80.0E	
MAR 26	5 29 59.7	22 14 58.1	9.18447	9.03239	28.180	0.3	18.1	-27.0	33.4	355.2	275.6	78.1E	
MAR 28	5 30 29.9	22 15 43.0	9.21691	9.03234	27.977	0.3	18.0	-27.0	214.7	355.1	275.7	76.3E	
MAR 30	5 31 1.6	22 16 28.5	9.24909	9.03229	27.744	0.3	18.0	-27.0	36.0	355.1	275.8	74.4E	
APR 1	5 31 35.0	22 17 14.3	9.28099	9.03225	27.481	0.3	17.9	-27.0	217.3	355.1	275.9	72.6E	
APR 3	5 32 10.0	22 18 0.4	9.31257	9.03220	27.189	0.4	17.8	-27.0	38.5	355.1	275.9	70.7E	
APR 5	5 32 46.6	22 18 46.8	9.34379	9.03216	26.869	0.4	17.8	-27.0	219.8	355.1	276.0	68.9E	
APR 7	5 33 24.6	22 19 33.2	9.37463	9.03211	26.521	0.4	17.7	-27.0	41.1	355.1	276.1	67.1E	
APR 9	5 34 4.2	22 20 19.8	9.40505	9.03207	26.149	0.4	17.7	-27.0	222.4	355.1	276.2	65.3E	
APR 11	5 34 45.2	22 21 6.4	9.43503	9.03203	25.752	0.4	17.6	-27.0	43.7	355.0	276.2	63.5E	
APR 13	5 35 27.6	22 21 52.9	9.46454	9.03198	25.333	0.4	17.6	-27.0	224.9	355.0	276.3	61.7E	
APR 15	5 36 11.3	22 22 39.1	9.49355	9.03194	24.893	0.4	17.5	-27.0	46.2	355.0	276.4	59.9E	
APR 17	5 36 56.4	22 23 24.8	9.52204	9.03190	24.434	0.4	17.5	-27.0	227.4	355.0	276.5	58.1E	
APR 19	5 37 42.7	22 24 10.0	9.54999	9.03186	23.957	0.4	17.4	-27.0	48.7	355.0	276.5	56.3E	
APR 21	5 38 30.3	22 24 54.8	9.57738	9.03182	23.459	0.4	17.4	-27.0	229.9	355.0	276.6	54.6E	
APR 23	5 39 19.2	22 25 39.0	9.60418	9.03179	22.941	0.4	17.3	-27.0	51.2	354.9	276.7	52.8E	
APR 25	5 40 9.2	22 26 22.6	9.63037	9.03175	22.402	0.4	17.3	-27.0	232.4	354.9	276.8	51.0E	
APR 27	5 41 0.3	22 27 5.3	9.65593	9.03171	21.842	0.4	17.2	-27.0	53.7	354.9	276.8	49.3E	
APR 29	5 41 52.6	22 27 47.2	9.68082	9.03168	21.262	0.4	17.2	-27.0	234.9	354.9	276.9	47.5E	
MAY 1	5 42 45.9	22 28 28.0	9.70504	9.03164	20.662	0.4	17.1	-27.0	56.2	354.9	277.0	45.8E	
MAY 3	5 43 40.2	22 29 7.7	9.72855	9.03161	20.044	0.4	17.1	-26.9	237.4	354.8	277.1	44.1E	
MAY 5	5 44 35.6	22 29 46.3	9.75134	9.03158	19.409	0.4	17.0	-26.9	58.7	354.8	277.1	42.3E	
MAY 7	5 45 31.9	22 30 23.8	9.77338	9.03154	18.758	0.4	17.0	-26.9	239.9	354.8	277.2	40.6E	
MAY 9	5 46 29.1	22 31 0.0	9.79467	9.03151	18.092	0.4	17.0	-26.9	61.1	354.8	277.3	38.9E	
MAY 11	5 47 27.2	22 31 34.9	9.81518	9.03148	17.415	0.4	16.9	-26.9	242.4	354.8	277.4	37.2E	
MAY 13	5 48 26.1	22 32 8.2	9.83490	9.03145	16.726	0.4	16.9	-26.9	63.6	354.7	277.4	35.5E	
MAY 15	5 49 25.8	22 32 39.9	9.85382	9.03142	16.028	0.4	16.9	-26.9	244.9	354.7	277.5	33.8E	
MAY 17	5 50 26.2	22 33 10.0	9.87192	9.03139	15.320	0.4	16.8	-26.9	66.1	354.7	277.6	32.1E	
MAY 19	5 51 27.4	22 33 38.6	9.88921	9.03137	14.602	0.4	16.8	-26.9	247.4	354.7	277.7	30.4E	
MAY 21	5 52 29.2	22 34 5.6	9.90566	9.03134	13.872	0.4	16.8	-26.8	68.6	354.7	277.7	28.7E	
MAY 23	5 53 31.7	22 34 30.9	9.92125	9.03131	13.130	0.4	16.8	-26.8	249.9	354.6	277.8	27.0E	
MAY 25	5 54 34.8	22 34 54.3	9.93599	9.03129	12.377	0.4	16.7	-26.8	71.1	354.6	277.9	25.4E	
MAY 27	5 55 38.4	22 35 15.9	9.94984	9.03126	11.612	0.3	16.7	-26.8	252.3	354.6	278.0	23.7E	
MAY 29	5 56 42.6	22 35 35.5	9.96281	9.03124	10.838	0.3	16.7	-26.8	73.6	354.6	278.0	22.0E	
MAY 31	5 57 47.3	22 35 53.2	9.97488	9.03122	10.054	0.3	16.7	-26.8	254.9	354.6	278.1	20.3E	
JUN 2	5 58 52.4	22 36 9.0	9.98604	9.03120	9.262	0.3	16.6	-26.7	76.1	354.5	278.2	18.7E	
JUN 4	5 59 58.0	22 36 22.8	9.99628	9.03117	8.464	0.3	16.6	-26.7	257.4	354.5	278.3	17.0E	
JUN 6	6 1 3.9	22 36 34.7	10.00559	9.03115	7.660	0.3	16.6	-26.7	78.6	354.5	278.3	15.4E	
JUN 8	6 2 10.2	22 36 44.5	10.01397	9.03113	6.853	0.3	16.6	-26.7	259.9	354.5	278.4	13.7E	
JUN 10	6 3 16.7	22 36 52.1	10.02142	9.03112	6.045	0.3	16.6	-26.6	81.2	354.4	278.5	12.1E	
JUN 12	6 4 23.5	22 36 57.5	10.02794	9.03110	5.235	0.3	16.6	-26.6	262.4	354.4	278.6	10.4E	
JUN 14	6 5 30.5	22 37 0.9	10.03352	9.03108	4.424	0.3	16.6	-26.6	83.7	354.4	278.6	8.8E	
JUN 16	6 6 37.8	22 37 2.2	10.03816	9.03106	3.610	0.3	16.6	-26.6	265.0	354.4	278.7	7.1E	
JUN 18	6 7 45.2	22 37 1.5	10.04186	9.03105	2.794	0.3	16.6	-26.6					

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
(h m s)	(d ' ")													
JUL 2	6 15 38.2	22 35 57.2	10.04112	9.03096	-2.988	0.3	16.6	-26.4	275.4	354.2	279.3	6.2W		
JUL 4	6 16 45.5	22 35 39.8	10.03719	9.03095	-3.811	0.3	16.6	-26.3	96.7	354.2	279.4	7.8W		
JUL 6	6 17 52.6	22 35 20.4	10.03232	9.03094	-4.629	0.3	16.6	-26.3	278.0	354.2	279.5	9.5W		
JUL 8	6 18 59.5	22 34 59.0	10.02651	9.03093	-5.441	0.3	16.6	-26.3	99.3	354.2	279.5	11.1W		
JUL 10	6 20 6.2	22 34 35.5	10.01976	9.03093	-6.246	0.3	16.6	-26.2	280.7	354.1	279.6	12.7W		
JUL 12	6 21 12.6	22 34 10.2	10.01208	9.03092	-7.044	0.3	16.6	-26.2	102.0	354.1	279.7	14.4W		
JUL 14	6 22 18.6	22 33 43.2	10.00349	9.03092	-7.837	0.3	16.6	-26.2	283.4	354.1	279.7	16.0W		
JUL 16	6 23 24.3	22 33 14.5	9.99398	9.03091	-8.625	0.3	16.6	-26.1	104.7	354.1	279.8	17.7W		
JUL 18	6 24 29.6	22 32 44.0	9.98356	9.03091	-9.409	0.3	16.6	-26.1	286.1	354.1	279.9	19.3W		
JUL 20	6 25 34.5	22 32 11.9	9.97225	9.03090	-10.189	0.4	16.7	-26.1	107.4	354.1	280.0	21.0W		
JUL 22	6 26 38.9	22 31 38.0	9.96003	9.03090	-10.963	0.4	16.7	-26.0	288.8	354.0	280.0	22.7W		
JUL 24	6 27 42.8	22 31 2.6	9.94693	9.03090	-11.730	0.4	16.7	-26.0	110.2	354.0	280.1	24.3W		
JUL 26	6 28 46.2	22 30 25.6	9.93294	9.03090	-12.490	0.4	16.7	-25.9	291.6	354.0	280.2	26.0W		
JUL 28	6 29 49.1	22 29 47.4	9.91808	9.03090	-13.241	0.4	16.8	-25.9	113.0	354.0	280.3	27.7W		
JUL 30	6 30 51.3	22 29 7.8	9.90235	9.03090	-13.982	0.4	16.8	-25.9	294.4	354.0	280.3	29.3W		
AUG 1	6 31 52.8	22 28 27.0	9.88578	9.03090	-14.712	0.4	16.8	-25.8	115.8	354.0	280.4	31.0W		
AUG 3	6 32 53.6	22 27 45.0	9.86837	9.03091	-15.427	0.4	16.8	-25.8	297.2	353.9	280.5	32.7W		
AUG 5	6 33 53.7	22 27 1.8	9.85015	9.03091	-16.128	0.4	16.9	-25.8	118.6	353.9	280.6	34.4W		
AUG 7	6 34 53.1	22 26 17.5	9.83112	9.03091	-16.814	0.4	16.9	-25.7	300.0	353.9	280.6	36.1W		
AUG 9	6 35 51.6	22 25 32.4	9.81131	9.03092	-17.486	0.4	16.9	-25.7	121.5	353.9	280.7	37.7W		
AUG 11	6 36 49.3	22 24 46.5	9.79073	9.03092	-18.144	0.4	17.0	-25.7	302.9	353.9	280.8	39.4W		
AUG 13	6 37 46.1	22 24 0.0	9.76940	9.03093	-18.790	0.4	17.0	-25.6	124.3	353.9	280.9	41.1W		
AUG 15	6 38 42.1	22 23 12.9	9.74733	9.03094	-19.422	0.4	17.1	-25.6	305.8	353.9	280.9	42.8W		
AUG 17	6 39 37.0	22 22 25.2	9.72454	9.03094	-20.042	0.4	17.1	-25.6	127.3	353.8	281.0	44.5W		
AUG 19	6 40 31.0	22 21 36.9	9.70104	9.03095	-20.647	0.4	17.1	-25.5	308.7	353.8	281.1	46.3W		
AUG 21	6 41 24.0	22 20 48.3	9.67685	9.03096	-21.237	0.4	17.2	-25.5	130.2	353.8	281.2	48.0W		
AUG 23	6 42 15.9	22 19 59.6	9.65198	9.03097	-21.811	0.4	17.2	-25.4	311.7	353.8	281.2	49.7W		
AUG 25	6 43 6.8	22 19 10.7	9.62647	9.03098	-22.368	0.4	17.3	-25.4	133.2	353.8	281.3	51.4W		
AUG 27	6 43 56.5	22 18 22.0	9.60032	9.03100	-22.905	0.4	17.3	-25.4	314.7	353.8	281.4	53.2W		
AUG 29	6 44 45.0	22 17 33.4	9.57356	9.03101	-23.422	0.4	17.4	-25.3	136.2	353.8	281.5	54.9W		
AUG 31	6 45 32.3	22 16 44.9	9.54622	9.03102	-23.915	0.4	17.4	-25.3	317.7	353.8	281.5	56.7W		
SEP 2	6 46 18.4	22 15 56.7	9.51832	9.03104	-24.385	0.4	17.5	-25.3	139.2	353.8	281.6	58.4W		
SEP 4	6 47 3.1	22 15 8.9	9.48990	9.03105	-24.832	0.4	17.5	-25.2	320.8	353.7	281.7	60.2W		
SEP 6	6 47 46.6	22 14 21.8	9.46097	9.03107	-25.255	0.4	17.6	-25.2	142.3	353.7	281.8	62.0W		
SEP 8	6 48 28.7	22 13 35.5	9.43156	9.03109	-25.657	0.4	17.6	-25.2	323.9	353.7	281.8	63.7W		
SEP 10	6 49 9.4	22 12 50.0	9.40171	9.03110	-26.036	0.4	17.7	-25.2	145.4	353.7	281.9	65.5W		
SEP 12	6 49 48.7	22 12 5.5	9.37142	9.03112	-26.394	0.4	17.7	-25.1	327.0	353.7	282.0	67.3W		
SEP 14	6 50 26.6	22 11 21.9	9.34074	9.03114	-26.730	0.4	17.8	-25.1	148.6	353.7	282.1	69.1W		
SEP 16	6 51 2.9	22 10 39.4	9.30968	9.03116	-27.042	0.4	17.9	-25.1	330.1	353.7	282.1	70.9W		
SEP 18	6 51 37.8	22 9 58.2	9.27828	9.03118	-27.330	0.4	17.9	-25.0	151.7	353.7	282.2	72.7W		
SEP 20	6 52 11.1	22 9 18.4	9.24656	9.03120	-27.593	0.4	18.0	-25.0	333.3	353.7	282.3	74.6W		
SEP 22	6 52 42.8	22 8 40.2	9.21454	9.03123	-27.829	0.4	18.0	-25.0	154.9	353.7	282.4	76.4W		
SEP 24	6 53 12.9	22 8 3.6	9.18228	9.03125	-28.037	0.4	18.1	-25.0	336.5	353.7	282.4	78.2W		
SEP 26	6 53 41.4	22 7 28.7	9.14979	9.03127	-28.214	0.4	18.2	-24.9	158.2	353.7	282.5	80.1W		
SEP 28	6 54 8.1	22 6 55.5	9.11711	9.03130	-28.360	0.4	18.2	-24.9	339.8	353.7	282.6	81.9W		
SEP 30	6 54 33.1	22 6 24.2	9.08428	9.03132	-28.473	0.4	18.3	-24.9	161.4	353.7	282.7	83.8W		
OCT 2	6 54 56.5	22 5 54.9	9.05134	9.03135	-28.554	0.3	18.4	-24.9	343.1	353.6	282.7	85.7W		
OCT 4	6 55 18.0	22 5 27.8	9.01833	9.03138	-28.605	0.3	18.4	-24.9	164.7	353.6	282.8	87.6W		
OCT 6	6 55 37.8	22 5 3.0	8.98527	9.03140	-28.625	0.3	18.5	-24.9	346.4	353.6	282.9	89.5W		
OCT 8	6 55 55.7	22 4 40.5	8.95221	9.03143	-28.615	0.3	18.6	-24.8	168.1	353.6	283.0	91.4W		
OCT 10	6 56 11.8	22 4 20.3	8.91918	9.03146	-28.576	0.3	18.6	-24.8	349.7	353.6	283.0	93.3W		
OCT 12	6 56 26.1	22 4 2.5	8.88621	9.03149	-28.506	0.3	18.7	-24.8	171.4	353.6	283.1	95.2W		
OCT 14	6 56 38.5	22 3 47.1	8.85333	9.03152	-28.406	0.3	18.8	-24.8	353.1	353.6	283.2	97.1W		
OCT 16	6 56 49.1	22 3 34.2	8.82060	9.03156	-28.274	0.3	18.8	-24.8	174.8	353.6	283.3	99.1W		
OCT 18	6 56 57.8	22 3 24.0	8.78803	9.03159	-28.109	0.3	18.9	-24.8	356.5	353.6	283.3	101.0W		
OCT 20	6 57 4.6	22 3 16.6	8.75567	9.03162	-27.910	0.3	19.0	-24.8	178.2	353.6	283.4	103.0W		
OCT 22	6 57 9.4	22 3 11.8	8.72356	9.03166	-27.677	0.3	19.1	-24.8	359.9	353.6	283.5	104.9W		
OCT 24	6 57 12.3	22 3 9.8	8.69175	9.03169	-27.407	0.2	19.1	-24.8	181.7	353.6	283.6	106.9W		
OCT 26	6 57 13.3	22 3 10.4	8.66026	9.03173	-27.099	0.2	19.2	-24.8	3.4	353.6	283.6	108.9W		
OCT 28	6 57 12.3	22 3 13.8	8.62915	9.03176	-26.754	0.2	19.3	-24.8	185.1	353.6	283.7	110.9W		
OCT 30	6 57 9.5	22 3 20.0	8.59847	9.03180	-26.373	0.2	19.3	-24.8	6.9	353.6	283.8	112.9W		
NOV 1	6 57 4.7	22 3 29.1	8.56824	9.03184	-25.957	0.2	19.4	-24.8	188.6	353.6	283.9	114.9W		
NOV 3	6 56 57.9	22 3 41.0	8.53851	9.03188	-25.508	0.2	19.5	-24.8	10.4	353.6	283.9	117.0W		
NOV 5	6 56 49.3	22 3 55.8	8.50932	9.03192	-25.027	0.2	19.5	-24.8	192.1	353.6	284.0	119.0W		
NOV 7	6 56 38.8	22 4 13.1	8.48071	9.03196	-24.513	0.2	19.6	-24.8	13.9	353.6	284.1	121.0W		
NOV 9	6 56 26.4	22 4 33.2	8.45270	9.03200	-23.968	0.1	19.7	-24.8	195.7	353.6	284.2	123.1W		
NOV 11	6 56 12.2	22 4 55.8	8.42535	9.03204	-23.391	0.1	19.7	-24.8	17.4	353.6	284.2	125.2W		
NOV 13	6 55 56.2	22 5 21.1	8.39868	9.03208	-22.782	0.1	19.8	-24.9	199.2	353.6	284.3	127.2W		
NOV 15	6 55 38.4	22 5 49.0	8.37273	9.03213	-22.141	0.1	19.8	-24.9	21.0	353.6	284.4	129.3W		
NOV 17	6 55 18.8	22 6 19.4	8.34754	9.03217	-21.467	0.1	19.9	-24.9	202.8	353.6	284.5	131.4W		
NOV 19	6 54 57.5	22 6 52.2	8.32315	9.03222	-20.760	0.1	20.0	-24.9	24.6	353.6	284.5	133.5W		
NOV 21	6 54 34.4	22 7 27.3	8.29959	9.03226	-20.019	0.1	20.0	-24.9	206.4	353.6	284.6	135.6W		
NOV 23	6 54 9.7	22 8 4.5	8.27691	9.03231	-19.246	0.1	20.1	-24.9	28.2	353.7	284.7	137.7W		
NOV 25	6 53 43.5	22 8 43.8	8.25514	9.03236	-18.440	0.0	20.1	-25.0	210.0	353.7	284.8	139.9W		
NOV 27	6 53 15.7	22 9 25.3	8.23432	9.03241	-17.604	0.0	20.2	-25.0	31.8	353.7	284.8	142.0W		
NOV 29	6 52 46.4	22 10 8.8	8.21448	9.03246	-16.741	0.0	20.2	-25.0	213.6	353.7	284.9	144.1W		
DEC 1	6 52 15.6	22 10 54.1	8.19565	9.03251	-15.854	0.0	20.3	-25.0	35.4	353.7	285.0	146.3W		
DEC 3	6 51 43.5	22 11 41.1	8.17786	9.03256	-14.944	0.0	20.3	-25.1	217.2	353.7	285.1	148.4W		
DEC 5	6 51 10.1	22 12 29.5	8.16113	9.03261	-14.012	0.0	20.4	-25.1	39.0	353.7	285.1	150.6W		
DEC 7	6 50 50.5	22 13 19.3	8.14549	9.03266	-13.059	0.0	20.4	-25.1	220.8	353.7	285.2	152.7W		
DEC 9	6 49 59.8	22 14 10.4	8.13097	9.03272	-12.087	-0.1	20.4	-25.2	42.6	353.7	285.3	154.9W		
DEC 11	6 49 23.0	22 15 2.6	8.11757	9.03277	-11.096	-0.1	20.5	-25.2	224.4	353.7	285.4	157.1W		
DEC 13	6 48 45.3	22 15 55.9	8.10534	9.03282	-10.086	-0.1	20.5	-25.2	46.2	353.7	285.4	159.3W		
DEC 15	6 48 6.6	22 16 50.1	8.09428	9.03288	-9.059	-0.1	20.5	-25.2	228.0	353.7	285.5			

Date (0 DT)	RA (h m s)	[Mean] (d ° ' '')	Dec (d ° ' '')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	6 41 52.3	22 25 14.8	8.05040	9.03342	0.720	-0.2	20.6	-25.5	64.1	353.8	286.2	178.6E	
JAN 4	6 41 9.7	22 26 10.4	8.05186	9.03348	1.821	-0.2	20.6	-25.6	245.8	353.8	286.3	176.5E	
JAN 6	6 40 27.2	22 27 5.5	8.05460	9.03355	2.917	-0.2	20.6	-25.6	67.6	353.8	286.3	174.3E	
JAN 8	6 39 45.0	22 28 0.1	8.05860	9.03361	4.009	-0.2	20.6	-25.6	249.3	353.8	286.4	172.1E	
JAN 10	6 39 3.1	22 28 54.0	8.06386	9.03368	5.094	-0.2	20.6	-25.7	71.1	353.8	286.5	169.9E	
JAN 12	6 38 21.7	22 29 47.2	8.07036	9.03374	6.172	-0.1	20.6	-25.7	252.8	353.9	286.6	167.7E	
JAN 14	6 37 40.7	22 30 39.6	8.07811	9.03381	7.242	-0.1	20.6	-25.7	74.5	353.9	286.6	165.5E	
JAN 16	6 37 0.4	22 31 30.9	8.08708	9.03388	8.303	-0.1	20.6	-25.8	256.3	353.9	286.7	163.4E	
JAN 18	6 36 20.8	22 32 21.2	8.09728	9.03395	9.353	-0.1	20.5	-25.8	78.0	353.9	286.8	161.2E	
JAN 20	6 35 42.1	22 33 10.5	8.10868	9.03402	10.389	-0.1	20.5	-25.8	259.7	353.9	286.9	159.0E	
JAN 22	6 35 4.3	22 33 58.9	8.12127	9.03409	11.409	-0.1	20.5	-25.9	81.3	353.9	286.9	156.8E	
JAN 24	6 34 27.4	22 34 46.2	8.13503	9.03416	12.408	-0.1	20.4	-25.9	263.0	353.9	287.0	154.6E	
JAN 26	6 33 51.6	22 35 32.4	8.14993	9.03423	13.385	-0.1	20.4	-25.9	84.7	353.9	287.1	152.5E	
JAN 28	6 33 17.0	22 36 17.2	8.16594	9.03431	14.339	0.0	20.4	-25.9	266.3	353.9	287.1	150.3E	
JAN 30	6 32 43.6	22 37 0.8	8.18304	9.03438	15.267	0.0	20.3	-26.0	88.0	353.9	287.2	148.1E	
FEB 1	6 32 11.5	22 37 43.2	8.20120	9.03445	16.169	0.0	20.3	-26.0	269.6	353.9	287.3	146.0E	
FEB 3	6 31 40.9	22 38 24.3	8.22038	9.03453	17.045	0.0	20.2	-26.0	91.3	353.9	287.4	143.8E	
FEB 5	6 31 11.6	22 39 4.2	8.24056	9.03460	17.895	0.0	20.2	-26.0	272.9	354.0	287.4	141.7E	
FEB 7	6 30 43.9	22 39 42.9	8.26171	9.03468	18.717	0.0	20.1	-26.1	94.5	354.0	287.5	139.5E	
FEB 9	6 30 17.7	22 40 20.2	8.28379	9.03476	19.513	0.0	20.1	-26.1	276.1	354.0	287.6	137.4E	
FEB 11	6 29 53.1	22 40 56.2	8.30677	9.03484	20.282	0.0	20.0	-26.1	97.7	354.0	287.7	135.3E	
FEB 13	6 29 30.1	22 41 30.8	8.33063	9.03492	21.023	0.1	19.9	-26.1	279.2	354.0	287.7	133.2E	
FEB 15	6 29 8.9	22 42 4.1	8.35533	9.03500	21.735	0.1	19.9	-26.1	100.8	354.0	287.8	131.1E	
FEB 17	6 28 49.4	22 42 36.2	8.38083	9.03508	22.417	0.1	19.8	-26.1	282.3	354.0	287.9	129.0E	
FEB 19	6 28 31.6	22 43 7.1	8.40710	9.03516	23.065	0.1	19.8	-26.2	103.9	354.0	288.0	126.9E	
FEB 21	6 28 15.7	22 43 36.8	8.43410	9.03524	23.679	0.1	19.7	-26.2	285.4	354.0	288.0	124.8E	
FEB 23	6 28 1.7	22 44 5.0	8.46179	9.03533	24.257	0.1	19.6	-26.2	106.9	354.0	288.1	122.8E	
FEB 25	6 27 49.5	22 44 32.0	8.49012	9.03541	24.798	0.1	19.6	-26.2	288.4	354.0	288.2	120.7E	
FEB 27	6 27 39.2	22 44 57.5	8.51906	9.03549	25.304	0.2	19.5	-26.2	109.9	354.0	288.3	118.6E	
FEB 29	6 27 30.9	22 45 21.8	8.54856	9.03558	25.773	0.2	19.4	-26.2	291.4	354.0	288.3	116.6E	
MAR 2	6 27 24.5	22 45 44.8	8.57859	9.03567	26.208	0.2	19.4	-26.2	112.9	354.0	288.4	114.6E	
MAR 4	6 27 20.0	22 46 6.5	8.60909	9.03575	26.607	0.2	19.3	-26.2	294.4	354.0	288.5	112.5E	
MAR 6	6 27 17.5	22 46 27.0	8.64004	9.03584	26.973	0.2	19.2	-26.2	115.8	354.0	288.6	110.5E	
MAR 8	6 27 16.8	22 46 46.1	8.67139	9.03593	27.307	0.2	19.2	-26.3	297.3	354.0	288.6	108.5E	
MAR 10	6 27 18.2	22 47 3.8	8.70311	9.03602	27.608	0.2	19.1	-26.3	118.7	354.0	288.7	106.5E	
MAR 12	6 27 21.4	22 47 20.0	8.73516	9.03611	27.878	0.2	19.0	-26.3	300.1	354.0	288.8	104.6E	
MAR 14	6 27 26.7	22 47 34.9	8.76750	9.03620	28.115	0.2	19.0	-26.3	121.5	354.0	288.9	102.6E	
MAR 16	6 27 33.8	22 47 48.6	8.80010	9.03629	28.319	0.3	18.9	-26.3	302.9	354.0	288.9	100.6E	
MAR 18	6 27 42.9	22 48 1.0	8.83291	9.03638	28.487	0.3	18.8	-26.3	124.3	354.0	289.0	98.7E	
MAR 20	6 27 53.9	22 48 11.9	8.86589	9.03648	28.620	0.3	18.7	-26.3	305.7	354.0	289.1	96.7E	
MAR 22	6 28 6.8	22 48 21.4	8.89901	9.03657	28.717	0.3	18.7	-26.3	127.1	354.0	289.2	94.8E	
MAR 24	6 28 21.6	22 48 29.3	8.93222	9.03667	28.779	0.3	18.6	-26.3	308.5	354.0	289.2	92.8E	
MAR 26	6 28 38.3	22 48 35.7	8.96548	9.03676	28.806	0.3	18.5	-26.3	129.8	354.0	289.3	90.9E	
MAR 28	6 28 56.8	22 48 40.6	8.99876	9.03686	28.800	0.3	18.5	-26.2	311.2	354.0	289.4	89.0E	
MAR 30	6 29 17.2	22 48 44.0	9.03200	9.03696	28.762	0.3	18.4	-26.2	132.5	354.0	289.5	87.1E	
APR 1	6 29 39.3	22 48 45.9	9.06519	9.03705	28.694	0.3	18.3	-26.2	313.9	354.0	289.5	85.2E	
APR 3	6 30 3.2	22 48 46.1	9.09828	9.03715	28.596	0.3	18.3	-26.2	135.2	354.0	289.6	83.3E	
APR 5	6 30 28.8	22 48 44.7	9.13124	9.03725	28.470	0.3	18.2	-26.2	316.5	354.0	289.7	81.5E	
APR 7	6 30 56.2	22 48 41.5	9.16404	9.03735	28.318	0.3	18.1	-26.2	137.8	354.0	289.8	79.6E	
APR 9	6 31 25.2	22 48 36.5	9.19665	9.03745	28.139	0.3	18.1	-26.2	319.1	353.9	289.8	77.8E	
APR 11	6 31 55.9	22 48 29.8	9.22904	9.03755	27.934	0.4	18.0	-26.2	140.4	353.9	289.9	75.9E	
APR 13	6 32 28.2	22 48 21.5	9.26118	9.03766	27.701	0.4	17.9	-26.2	321.7	353.9	290.0	74.1E	
APR 15	6 33 2.1	22 48 11.4	9.29303	9.03776	27.440	0.4	17.9	-26.1	143.0	353.9	290.1	72.2E	
APR 17	6 33 37.5	22 47 59.4	9.32456	9.03786	27.149	0.4	17.8	-26.1	324.3	353.9	290.1	70.4E	
APR 19	6 34 14.5	22 47 45.4	9.35574	9.03797	26.831	0.4	17.8	-26.1	145.6	353.9	290.2	68.6E	
APR 21	6 34 52.9	22 47 29.4	9.38653	9.03808	26.485	0.4	17.7	-26.1	326.9	353.9	290.3	66.8E	
APR 23	6 35 32.8	22 47 11.4	9.41691	9.03818	26.113	0.4	17.6	-26.1	148.2	353.9	290.4	65.0E	
APR 25	6 36 14.2	22 46 51.4	9.44685	9.03829	25.716	0.4	17.6	-26.0	329.4	353.9	290.4	63.2E	
APR 27	6 36 56.9	22 46 29.4	9.47631	9.03840	25.296	0.4	17.5	-26.0	150.7	353.9	290.5	61.4E	
APR 29	6 37 41.0	22 46 5.3	9.50528	9.03851	24.854	0.4	17.5	-26.0	332.0	353.9	290.6	59.7E	
MAY 1	6 38 26.3	22 45 39.1	9.53372	9.03862	24.391	0.4	17.4	-26.0	153.2	353.8	290.7	57.9E	
MAY 3	6 39 12.9	22 45 10.7	9.56162	9.03873	23.910	0.4	17.4	-25.9	334.5	353.8	290.7	56.1E	
MAY 5	6 40 0.7	22 44 39.9	9.58895	9.03884	23.411	0.4	17.3	-25.9	155.8	353.8	290.8	54.4E	
MAY 7	6 40 49.7	22 44 6.9	9.61570	9.03895	22.895	0.4	17.3	-25.9	337.0	353.8	290.9	52.6E	
MAY 9	6 41 39.8	22 43 31.8	9.64184	9.03906	22.360	0.4	17.2	-25.8	158.3	353.8	291.0	50.9E	
MAY 11	6 42 31.1	22 42 54.4	9.66735	9.03918	21.807	0.4	17.2	-25.8	339.5	353.8	291.0	49.2E	
MAY 13	6 43 23.4	22 42 14.8	9.69221	9.03929	21.234	0.4	17.1	-25.8	160.8	353.8	291.1	47.4E	
MAY 15	6 44 16.8	22 41 32.8	9.71640	9.03941	20.641	0.4	17.1	-25.8	342.0	353.8	291.2	45.7E	
MAY 17	6 45 11.1	22 40 48.4	9.73989	9.03952	20.030	0.4	17.1	-25.7	163.3	353.7	291.3	44.0E	
MAY 19	6 46 6.4	22 40 1.5	9.76267	9.03964	19.400	0.4	17.0	-25.7	344.5	353.7	291.3	42.3E	
MAY 21	6 47 2.7	22 39 12.2	9.78471	9.03976	18.754	0.4	17.0	-25.6	165.8	353.7	291.4	40.6E	
MAY 23	6 47 59.8	22 38 20.5	9.80599	9.03987	18.093	0.4	16.9	-25.6	347.0	353.7	291.5	38.9E	
MAY 25	6 48 57.8	22 37 26.5	9.82650	9.03999	17.417	0.4	16.9	-25.6	168.3	353.7	291.6	37.2E	
MAY 27	6 49 56.6	22 36 30.0	9.84623	9.04011	16.729	0.4	16.9	-25.5	349.5	353.7	291.6	35.5E	
MAY 29	6 50 56.1	22 35 31.1	9.86515	9.04023	16.030	0.4	16.8	-25.5	170.8	353.7	291.7	33.8E	
MAY 31	6 51 56.3	22 34 29.7	9.88326	9.04036	15.321	0.4	16.8	-25.4	352.0	353.7	291.8	32.1E	
JUN 2	6 52 57.2	22 33 25.7	9.90054	9.04048	14.604	0.4	16.8	-25.4	173.3	353.6	291.9	30.4E	
JUN 4	6 53 58.7	22 32 19.3	9.91699	9.04060	13.878	0.4	16.8	-25.4	354.5	353.6	291.9	28.7E	
JUN 6	6 55 0.9	22 31 10.5	9.93260	9.04072	13.143	0.4	16.7	-25.3	175.8	353.6	292.0	27.1E	
JUN 8	6 56 3.6	22 29 59.5	9.94735	9.04085	12.397	0.4	16.7	-25.3	357.0	353.6	292.1	25.4E	
JUN 10	6 57 6.9	22 28 46.0	9.96124	9.04097	11.641	0.4	16.7	-25.2	178.3	353.6	292.1	23.7E	
JUN 12	6 58 10.6	22 27 30.1	9.97424	9.04110	10.873	0.4	16.7	-25.2	359.5	353.6	292.2	22.1E	
JUN 14	6 59 14.9	22 26 11.6	9.98636	9.04123	10.095	0.4	16.6	-25.1	180.8	353.6	292.3	20.4E	
JUN 16	7 0 19.5	22 24 50.8	9.99756	9.04135	9.308	0.4	16.6	-25.1	2.1	353.6	292.4	18.7E	
JUN 18	7 1 24.												

2004 SATURN

Geocentric Planetary Ephemeris

2004 SATURN

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	7 9 7.5	22 12 43.0	10.05383	9.04240	-2.838	0.3	16.5	-24.6	12.3	353.5	293.0	5.5E	
JUL 4	7 10 14.3	22 11 2.5	10.05664	9.04254	-2.022	0.3	16.5	-24.6	193.6	353.5	293.0	3.9E	
JUL 6	7 11 21.1	22 9 20.2	10.05851	9.04268	-1.203	0.3	16.5	-24.5	14.9	353.5	293.1	2.2E	
JUL 8	7 12 28.0	22 7 36.0	10.05942	9.04281	-0.381	0.3	16.5	-24.5	196.2	353.4	293.2	0.6E	
JUL 10	7 13 34.8	22 5 49.8	10.05939	9.04295	-0.443	0.3	16.5	-24.4	17.5	353.4	293.3	1.1W	
JUL 12	7 14 41.6	22 4 1.8	10.05840	9.04309	-1.270	0.3	16.5	-24.3	198.8	353.4	293.3	2.7W	
JUL 14	7 15 48.3	22 2 12.1	10.05646	9.04323	-2.098	0.3	16.5	-24.3	20.1	353.4	293.4	4.4W	
JUL 16	7 16 54.9	22 0 20.8	10.05356	9.04336	-2.925	0.3	16.5	-24.2	201.5	353.4	293.5	6.0W	
JUL 18	7 18 1.4	21 58 28.0	10.04970	9.04350	-3.750	0.3	16.5	-24.2	22.8	353.4	293.6	7.7W	
JUL 20	7 19 7.6	21 56 33.8	10.04490	9.04365	-4.572	0.4	16.5	-24.1	204.1	353.4	293.6	9.3W	
JUL 22	7 20 13.6	21 54 38.2	10.03914	9.04379	-5.390	0.4	16.6	-24.0	25.5	353.4	293.7	11.0W	
JUL 24	7 21 19.3	21 52 41.4	10.03245	9.04393	-6.203	0.4	16.6	-24.0	206.8	353.4	293.8	12.6W	
JUL 26	7 22 24.7	21 50 43.2	10.02482	9.04407	-7.008	0.4	16.6	-23.9	28.2	353.4	293.9	14.3W	
JUL 28	7 23 29.8	21 48 44.0	10.01626	9.04422	-7.806	0.4	16.6	-23.9	209.5	353.3	293.9	15.9W	
JUL 30	7 24 34.5	21 46 43.9	10.00679	9.04436	-8.596	0.4	16.6	-23.8	30.9	353.3	294.0	17.6W	
AUG 1	7 25 38.8	21 44 43.0	9.99641	9.04451	-9.380	0.4	16.6	-23.7	212.3	353.3	294.1	19.3W	
AUG 3	7 26 42.6	21 42 41.4	9.98513	9.04465	-10.158	0.4	16.6	-23.7	33.6	353.3	294.2	20.9W	
AUG 5	7 27 46.0	21 40 39.2	9.97295	9.04480	-10.932	0.4	16.7	-23.6	215.0	353.3	294.2	22.6W	
AUG 7	7 28 48.8	21 38 36.2	9.95988	9.04495	-11.700	0.4	16.7	-23.5	36.4	353.3	294.3	24.3W	
AUG 9	7 29 51.1	21 36 32.8	9.94592	9.04510	-12.462	0.4	16.7	-23.5	217.8	353.3	294.4	25.9W	
AUG 11	7 30 52.8	21 34 29.1	9.93109	9.04525	-13.216	0.4	16.7	-23.4	39.2	353.3	294.5	27.6W	
AUG 13	7 31 53.9	21 32 25.3	9.91540	9.04540	-13.961	0.4	16.8	-23.4	220.6	353.3	294.5	29.3W	
AUG 15	7 32 54.4	21 30 21.5	9.89885	9.04555	-14.696	0.4	16.8	-23.3	42.0	353.3	294.6	31.0W	
AUG 17	7 33 54.1	21 28 17.8	9.88145	9.04570	-15.419	0.4	16.8	-23.2	223.5	353.3	294.7	32.7W	
AUG 19	7 34 53.1	21 26 14.3	9.86323	9.04585	-16.129	0.5	16.8	-23.2	44.9	353.3	294.8	34.4W	
AUG 21	7 35 51.3	21 24 11.2	9.84420	9.04601	-16.825	0.5	16.9	-23.1	226.3	353.3	294.8	36.1W	
AUG 23	7 36 48.7	21 22 8.4	9.82437	9.04616	-17.505	0.5	16.9	-23.1	47.8	353.3	294.9	37.8W	
AUG 25	7 37 45.3	21 20 6.3	9.80377	9.04632	-18.169	0.5	17.0	-23.0	229.2	353.3	295.0	39.5W	
AUG 27	7 38 41.0	21 18 5.2	9.78241	9.04647	-18.817	0.5	17.0	-22.9	50.7	353.3	295.1	41.2W	
AUG 29	7 39 35.8	21 16 5.0	9.76030	9.04663	-19.451	0.5	17.0	-22.9	232.2	353.2	295.1	42.9W	
AUG 31	7 40 29.6	21 14 6.0	9.73748	9.04679	-20.070	0.5	17.1	-22.8	53.6	353.2	295.2	44.6W	
SEP 2	7 41 22.4	21 12 8.2	9.71394	9.04694	-20.675	0.5	17.1	-22.8	235.1	353.2	295.3	46.3W	
SEP 4	7 42 14.2	21 10 11.6	9.68972	9.04710	-21.266	0.5	17.2	-22.7	56.6	353.2	295.4	48.1W	
SEP 6	7 43 5.0	21 8 16.6	9.66482	9.04726	-21.842	0.5	17.2	-22.7	238.1	353.2	295.4	49.8W	
SEP 8	7 43 54.7	21 6 23.2	9.63927	9.04742	-22.401	0.5	17.2	-22.6	59.6	353.2	295.5	51.6W	
SEP 10	7 44 43.3	21 4 31.7	9.61308	9.04758	-22.941	0.5	17.3	-22.5	241.1	353.2	295.6	53.3W	
SEP 12	7 45 30.7	21 2 42.4	9.58628	9.04775	-23.463	0.5	17.3	-22.5	62.6	353.2	295.7	55.1W	
SEP 14	7 46 16.8	21 0 55.2	9.55889	9.04791	-23.963	0.5	17.4	-22.4	244.2	353.2	295.7	56.8W	
SEP 16	7 47 1.8	20 59 10.3	9.53093	9.04807	-24.440	0.5	17.4	-22.4	65.7	353.2	295.8	58.6W	
SEP 18	7 47 45.4	20 57 27.9	9.50244	9.04824	-24.893	0.5	17.5	-22.3	247.2	353.2	295.9	60.4W	
SEP 20	7 48 27.7	20 55 48.0	9.47343	9.04840	-25.321	0.5	17.5	-22.3	68.8	353.2	296.0	62.2W	
SEP 22	7 49 8.8	20 54 11.0	9.44395	9.04857	-25.724	0.5	17.6	-22.3	250.3	353.2	296.0	64.0W	
SEP 24	7 49 48.4	20 52 37.1	9.41402	9.04873	-26.102	0.5	17.7	-22.2	71.9	353.2	296.1	65.8W	
SEP 26	7 50 26.6	20 51 6.5	9.38366	9.04890	-26.456	0.5	17.7	-22.2	253.5	353.2	296.2	67.6W	
SEP 28	7 51 3.3	20 49 39.1	9.35291	9.04907	-26.786	0.5	17.8	-22.1	75.1	353.2	296.2	69.4W	
SEP 30	7 51 38.6	20 48 15.1	9.32179	9.04924	-27.094	0.5	17.8	-22.1	256.7	353.2	296.3	71.2W	
OCT 2	7 52 12.4	20 46 54.5	9.29033	9.04941	-27.377	0.5	17.9	-22.0	78.3	353.2	296.4	73.1W	
OCT 4	7 52 44.7	20 45 37.6	9.25855	9.04958	-27.636	0.5	18.0	-22.0	259.9	353.2	296.5	74.9W	
OCT 6	7 53 15.4	20 44 24.7	9.22650	9.04975	-27.868	0.4	18.0	-22.0	81.5	353.2	296.5	76.7W	
OCT 8	7 53 44.5	20 43 15.8	9.19418	9.04992	-28.073	0.4	18.1	-21.9	263.1	353.2	296.6	78.6W	
OCT 10	7 54 12.0	20 42 11.1	9.16165	9.05009	-28.248	0.4	18.1	-21.9	84.7	353.2	296.7	80.5W	
OCT 12	7 54 37.8	20 41 10.7	9.12894	9.05026	-28.393	0.4	18.2	-21.9	266.4	353.2	296.8	82.3W	
OCT 14	7 55 1.9	20 40 14.6	9.09607	9.05044	-28.506	0.4	18.3	-21.9	88.0	353.2	296.8	84.2W	
OCT 16	7 55 24.3	20 39 23.1	9.06310	9.05061	-28.586	0.4	18.3	-21.8	269.6	353.2	296.9	86.1W	
OCT 18	7 55 44.9	20 38 36.1	9.03005	9.05079	-28.632	0.4	18.4	-21.8	91.3	353.2	297.0	88.0W	
OCT 20	7 56 3.8	20 37 54.1	8.99696	9.05096	-28.644	0.4	18.5	-21.8	273.0	353.2	297.1	89.9W	
OCT 22	7 56 20.9	20 37 17.0	8.96389	9.05114	-28.623	0.4	18.5	-21.8	94.6	353.2	297.1	91.9W	
OCT 24	7 56 36.2	20 36 44.9	8.93085	9.05132	-28.570	0.4	18.6	-21.8	276.3	353.2	297.2	93.8W	
OCT 26	7 56 49.7	20 36 17.8	8.89790	9.05150	-28.487	0.4	18.7	-21.7	98.0	353.2	297.3	95.7W	
OCT 28	7 57 1.4	20 35 55.8	8.86505	9.05168	-28.373	0.4	18.7	-21.7	279.7	353.2	297.4	97.7W	
OCT 30	7 57 11.2	20 35 38.8	8.83236	9.05186	-28.227	0.4	18.8	-21.7	101.4	353.2	297.4	99.6W	
NOV 1	7 57 19.2	20 35 27.1	8.79986	9.05204	-28.049	0.3	18.9	-21.7	283.1	353.2	297.5	101.6W	
NOV 3	7 57 25.3	20 35 20.7	8.76758	9.05222	-27.837	0.3	19.0	-21.7	104.8	353.2	297.6	103.6W	
NOV 5	7 57 29.5	20 35 19.7	8.73556	9.05240	-27.592	0.3	19.0	-21.7	286.5	353.2	297.7	105.6W	
NOV 7	7 57 31.8	20 35 24.0	8.70385	9.05258	-27.311	0.3	19.1	-21.7	108.3	353.2	297.7	107.6W	
NOV 9	7 57 32.2	20 35 33.8	8.67248	9.05277	-26.994	0.3	19.2	-21.7	290.0	353.2	297.8	109.6W	
NOV 11	7 57 30.8	20 35 48.8	8.64150	9.05295	-26.640	0.3	19.2	-21.7	111.7	353.2	297.9	111.6W	
NOV 13	7 57 27.4	20 36 9.2	8.61095	9.05314	-26.249	0.3	19.3	-21.7	293.5	353.2	298.0	113.6W	
NOV 15	7 57 22.2	20 36 34.9	8.58087	9.05332	-25.819	0.3	19.4	-21.7	115.2	353.2	298.0	115.7W	
NOV 17	7 57 15.1	20 37 6.1	8.55131	9.05351	-25.353	0.3	19.4	-21.7	297.0	353.2	298.1	117.7W	
NOV 19	7 57 6.1	20 37 42.6	8.52231	9.05370	-24.852	0.2	19.5	-21.8	118.8	353.2	298.2	119.8W	
NOV 21	7 56 55.2	20 38 24.3	8.49391	9.05389	-24.318	0.2	19.6	-21.8	300.5	353.2	298.3	121.8W	
NOV 23	7 56 42.6	20 39 11.1	8.46614	9.05408	-23.752	0.2	19.6	-21.8	122.3	353.2	298.3	123.9W	
NOV 25	7 56 28.1	20 40 2.9	8.43905	9.05427	-23.155	0.2	19.7	-21.8	304.1	353.2	298.4	126.0W	
NOV 27	7 56 11.9	20 40 59.4	8.41266	9.05446	-22.527	0.2	19.8	-21.8	125.8	353.2	298.5	128.1W	
NOV 29	7 55 54.0	20 42 0.8	8.38702	9.05465	-21.868	0.2	19.8	-21.9	307.6	353.2	298.6	130.2W	
DEC 1	7 55 34.3	20 43 6.9	8.36215	9.05484	-21.177	0.2	19.9	-21.9	129.4	353.2	298.6	132.3W	
DEC 3	7 55 13.0	20 44 17.6	8.33811	9.05503	-20.455	0.2	19.9	-21.9	311.2	353.2	298.7	134.4W	
DEC 5	7 54 50.0	20 45 32.8	8.31491	9.05523	-19.701	0.1	20.0	-22.0	133.0	353.2	298.8	136.5W	
DEC 7	7 54 25.4	20 46 52.1	8.29260	9.05542	-18.916	0.1	20.0	-22.0	314.8	353.2	298.9	138.6W	
DEC 9	7 53 59.3	20 48 15.4	8.27122	9.05561	-18.100	0.1	20.1	-22.0	136.6	353.2	298.9	140.8W	
DEC 11	7 53 31.6	20 49 42.4	8.25080	9.05581	-17.252	0.1	20.1	-22.1	318.4	353.2	299.0	142.9W	
DEC 13	7 53 2.6	20 51 13.2	8.23137	9.05601	-16.375	0.1	20.2	-22.1	140.2	353.2	299.1	145.1W	
DEC 15	7 52 32.1	20 52 47.5	8.21298	9.05620	-15.471	0.1	20.2	-22.1	322.0	353.2	299.1	147.2W	
DEC 17	7 52 0.3	20 54 25.2	8.19564	9.05640									

Date (0 DT)	RA [Mean] (h m s)			Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	7 47	8.1	21	8 50.9	8.09776	9.05801	-6.464	-0.1	20.5	-22.6	158.1	353.2	299.8	166.8W
JAN 4	7 46	27.9	21	10 46.0	8.09092	9.05822	-5.388	-0.1	20.5	-22.6	339.9	353.2	299.9	169.0W
JAN 6	7 45	47.3	21	12 41.7	8.08532	9.05842	-4.301	-0.1	20.6	-22.7	161.7	353.2	300.0	171.2W
JAN 8	7 45	6.3	21	14 37.8	8.08098	9.05863	-3.203	-0.1	20.6	-22.7	343.4	353.2	300.0	173.4W
JAN 10	7 44	24.9	21	16 34.0	8.07792	9.05884	-2.098	-0.1	20.6	-22.8	165.2	353.2	300.1	175.6W
JAN 12	7 43	43.4	21	18 30.2	8.07613	9.05904	-0.988	-0.1	20.6	-22.8	347.0	353.2	300.2	177.8W
JAN 14	7 43	1.7	21	20 26.1	8.07563	9.05925	0.121	-0.1	20.6	-22.9	168.7	353.2	300.3	180.0E
JAN 16	7 42	20.0	21	22 21.3	8.07641	9.05946	1.228	-0.1	20.6	-22.9	350.5	353.2	300.3	177.8E
JAN 18	7 41	38.4	21	24 15.5	8.07846	9.05967	2.330	-0.1	20.6	-23.0	172.2	353.2	300.4	175.6E
JAN 20	7 40	57.0	21	26 8.5	8.08179	9.05988	3.426	-0.1	20.6	-23.0	354.0	353.2	300.5	173.4E
JAN 22	7 40	15.9	21	28 0.1	8.08637	9.06009	4.515	-0.1	20.6	-23.1	175.7	353.2	300.6	171.2E
JAN 24	7 39	35.1	21	29 50.2	8.09221	9.06030	5.594	-0.1	20.5	-23.1	357.4	353.2	300.6	169.0E
JAN 26	7 38	54.9	21	31 38.5	8.09929	9.06052	6.664	-0.1	20.5	-23.2	179.2	353.2	300.7	166.8E
JAN 28	7 38	15.1	21	33 24.8	8.10760	9.06073	7.724	-0.1	20.5	-23.2	0.9	353.2	300.8	164.6E
JAN 30	7 37	36.0	21	35 9.0	8.11713	9.06094	8.772	0.0	20.5	-23.2	182.6	353.2	300.9	162.4E
FEB 1	7 36	57.7	21	36 50.8	8.12786	9.06116	9.807	0.0	20.4	-23.3	4.3	353.2	300.9	160.2E
FEB 3	7 36	20.1	21	38 29.9	8.13978	9.06138	10.829	0.0	20.4	-23.3	186.0	353.3	301.0	158.0E
FEB 5	7 35	43.5	21	40 6.4	8.15287	9.06159	11.836	0.0	20.4	-23.4	7.6	353.3	301.1	155.9E
FEB 7	7 35	7.9	21	41 40.1	8.16711	9.06181	12.825	0.0	20.3	-23.4	189.3	353.3	301.2	153.7E
FEB 9	7 34	33.3	21	43 10.9	8.18248	9.06203	13.794	0.0	20.3	-23.5	11.0	353.3	301.2	151.5E
FEB 11	7 33	59.9	21	44 38.6	8.19896	9.06225	14.739	0.0	20.3	-23.5	192.6	353.3	301.3	149.4E
FEB 13	7 33	27.7	21	46 3.0	8.21652	9.06247	15.657	0.0	20.2	-23.5	14.2	353.3	301.4	147.2E
FEB 15	7 32	56.9	21	47 23.9	8.23512	9.06269	16.548	0.1	20.2	-23.6	195.9	353.3	301.5	145.1E
FEB 17	7 32	27.4	21	48 41.3	8.25474	9.06291	17.411	0.1	20.1	-23.6	17.5	353.3	301.5	143.0E
FEB 19	7 31	59.3	21	49 55.2	8.27533	9.06313	18.246	0.1	20.1	-23.6	199.1	353.3	301.6	140.8E
FEB 21	7 31	32.7	21	51 5.4	8.29687	9.06335	19.052	0.1	20.0	-23.7	20.7	353.3	301.7	138.7E
FEB 23	7 31	7.7	21	52 12.0	8.31933	9.06357	19.830	0.1	20.0	-23.7	202.3	353.3	301.7	136.6E
FEB 25	7 30	44.2	21	53 14.9	8.34267	9.06380	20.579	0.1	19.9	-23.7	23.8	353.3	301.8	134.5E
FEB 27	7 30	22.3	21	54 13.9	8.36686	9.06402	21.299	0.1	19.9	-23.8	205.4	353.3	301.9	132.4E
MAR 1	7 30	2.1	21	55 8.9	8.39186	9.06425	21.991	0.1	19.8	-23.8	27.0	353.3	302.0	130.3E
MAR 3	7 29	43.7	21	55 60.0	8.41765	9.06447	22.653	0.2	19.7	-23.8	208.5	353.3	302.0	128.2E
MAR 5	7 29	26.9	21	56 47.1	8.44418	9.06470	23.285	0.2	19.7	-23.8	30.0	353.3	302.1	126.2E
MAR 7	7 29	12.0	21	57 30.4	8.47143	9.06493	23.885	0.2	19.6	-23.8	211.6	353.3	302.2	124.1E
MAR 9	7 28	58.8	21	58 9.8	8.49935	9.06516	24.452	0.2	19.6	-23.9	33.1	353.3	302.3	122.0E
MAR 11	7 28	47.5	21	58 45.1	8.52790	9.06539	24.983	0.2	19.5	-23.9	214.6	353.3	302.3	120.0E
MAR 13	7 28	38.0	21	59 16.2	8.55705	9.06562	25.477	0.2	19.4	-23.9	36.1	353.3	302.4	118.0E
MAR 15	7 28	30.5	21	59 43.1	8.58675	9.06585	25.935	0.2	19.4	-23.9	217.5	353.3	302.5	115.9E
MAR 17	7 28	24.8	22	0 5.9	8.61695	9.06608	26.356	0.2	19.3	-23.9	39.0	353.3	302.6	113.9E
MAR 19	7 28	21.0	22	0 24.7	8.64762	9.06631	26.742	0.3	19.2	-23.9	220.5	353.3	302.6	111.9E
MAR 21	7 28	19.1	22	0 39.4	8.67871	9.06654	27.093	0.3	19.1	-23.9	41.9	353.3	302.7	109.9E
MAR 23	7 28	19.1	22	0 50.1	8.71019	9.06678	27.411	0.3	19.1	-23.9	223.4	353.3	302.8	107.9E
MAR 25	7 28	21.0	22	0 56.7	8.74202	9.06701	27.696	0.3	19.0	-23.9	44.8	353.3	302.9	106.0E
MAR 27	7 28	24.8	22	0 59.1	8.77416	9.06724	27.949	0.3	18.9	-23.9	226.2	353.3	302.9	104.0E
MAR 29	7 28	30.4	22	0 57.4	8.80658	9.06748	28.170	0.3	18.9	-23.9	47.6	353.3	303.0	102.0E
MAR 31	7 28	37.9	22	0 51.6	8.83923	9.06772	28.361	0.3	18.8	-23.9	229.0	353.3	303.1	100.1E
APR 2	7 28	47.4	22	0 41.8	8.87208	9.06795	28.520	0.3	18.7	-23.9	50.4	353.3	303.2	98.2E
APR 4	7 28	58.6	22	0 28.1	8.90510	9.06819	28.646	0.3	18.7	-23.9	231.8	353.3	303.2	96.2E
APR 6	7 29	11.7	22	0 10.4	8.93825	9.06843	28.739	0.3	18.6	-23.9	53.2	353.3	303.3	94.3E
APR 8	7 29	26.6	21	59 48.7	8.97148	9.06867	28.797	0.4	18.5	-23.9	234.6	353.3	303.4	92.4E
APR 10	7 29	43.4	21	59 22.8	9.00476	9.06891	28.820	0.4	18.5	-23.9	55.9	353.3	303.5	90.5E
APR 12	7 30	1.9	21	58 52.7	9.03805	9.06915	28.809	0.4	18.4	-23.8	237.3	353.3	303.5	88.6E
APR 14	7 30	22.2	21	58 18.7	9.07130	9.06939	28.766	0.4	18.3	-23.8	58.6	353.3	303.6	86.7E
APR 16	7 30	44.3	21	57 40.8	9.10449	9.06963	28.692	0.4	18.3	-23.8	240.0	353.3	303.7	84.9E
APR 18	7 31	8.1	21	56 58.9	9.13758	9.06988	28.587	0.4	18.2	-23.8	61.3	353.3	303.8	83.0E
APR 20	7 31	33.5	21	56 13.1	9.17052	9.07012	28.454	0.4	18.1	-23.8	242.6	353.3	303.8	81.1E
APR 22	7 32	0.6	21	55 23.4	9.20330	9.07036	28.293	0.4	18.1	-23.7	64.0	353.3	303.9	79.3E
APR 24	7 32	29.3	21	54 29.7	9.23587	9.07061	28.106	0.4	18.0	-23.7	245.3	353.3	304.0	77.5E
APR 26	7 32	59.6	21	53 32.0	9.26822	9.07085	27.894	0.4	17.9	-23.7	66.6	353.3	304.0	75.6E
APR 28	7 33	31.4	21	52 30.4	9.30031	9.07110	27.657	0.4	17.9	-23.6	247.9	353.3	304.1	73.8E
APR 30	7 34	4.8	21	51 25.1	9.33211	9.07135	27.396	0.4	17.8	-23.6	69.2	353.3	304.2	72.0E
MAY 2	7 34	39.7	21	50 16.1	9.36359	9.07160	27.108	0.4	17.7	-23.6	250.5	353.3	304.3	70.2E
MAY 4	7 35	16.0	21	49 3.2	9.39472	9.07184	26.793	0.4	17.7	-23.5	71.8	353.3	304.3	68.4E
MAY 6	7 35	53.8	21	47 46.5	9.42547	9.07209	26.451	0.4	17.6	-23.5	253.1	353.2	304.4	66.6E
MAY 8	7 36	33.0	21	46 25.8	9.45582	9.07234	26.082	0.5	17.6	-23.5	74.3	353.2	304.5	64.8E
MAY 10	7 37	13.5	21	45 1.4	9.48572	9.07260	25.688	0.5	17.5	-23.4	255.6	353.2	304.6	63.0E
MAY 12	7 37	55.4	21	43 33.1	9.51515	9.07285	25.269	0.5	17.5	-23.4	76.9	353.2	304.6	61.3E
MAY 14	7 38	38.6	21	42 1.3	9.54409	9.07310	24.827	0.5	17.4	-23.3	258.2	353.2	304.7	59.5E
MAY 16	7 39	23.0	21	40 25.8	9.57250	9.07335	24.364	0.5	17.4	-23.3	79.5	353.2	304.8	57.8E
MAY 18	7 40	8.6	21	38 46.6	9.60037	9.07361	23.881	0.5	17.3	-23.2	260.7	353.2	304.9	56.0E
MAY 20	7 40	55.4	21	37 3.8	9.62767	9.07386	23.379	0.5	17.3	-23.2	82.0	353.2	304.9	54.3E
MAY 22	7 41	43.3	21	35 17.3	9.65437	9.07411	22.860	0.5	17.2	-23.1	263.3	353.2	305.0	52.5E
MAY 24	7 42	32.3	21	33 27.2	9.68047	9.07437	22.325	0.5	17.2	-23.1	84.5	353.2	305.1	50.8E
MAY 26	7 43	22.3	21	31 33.5	9.70594	9.07463	21.773	0.5	17.1	-23.0	265.8	353.2	305.2	49.1E
MAY 28	7 44	13.4	21	29 36.6	9.73077	9.07488	21.205	0.5	17.1	-23.0	87.0	353.2	305.2	47.4E
MAY 30	7 45	5.5	21	27 36.2	9.75493	9.07514	20.619	0.5	17.0	-22.9	268.3	353.2	305.3	45.6E
JUN 1	7 45	58.4	21	25 32.4	9.77840	9.07540	20.015	0.5	17.0	-22.9	89.6	353.2	305.4	43.9E
JUN 3	7 46	52.4	21	23 25.1	9.80116	9.07566	19.392	0.5	17.0	-22.8	270.8	353.2	305.5	42.2E
JUN 5	7 47	47.2	21	21 14.3	9.82319	9.07592	18.752	0.5	16.9	-22.7	92.1	353.2	305.5	40.5E
JUN 7	7 48	42.8	21	19 0.2	9.84447	9.07618	18.094	0.5	16.9	-22.7	273.4	353.2	305.6	38.8E
JUN 9	7 49	39.3	21	16 42.9	9.86499	9.07644	17.422	0.5	16.8	-22.6	94.6	353.2		

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JUL 1	8 0 41.9	20 48 14.7	10.03613	9.07936	9.330	0.5	16.6	-21.8	288.6	353.2	306.5	18.8E	
JUL 3	8 1 45.0	20 45 22.9	10.04645	9.07963	8.539	0.5	16.5	-21.8	109.9	353.2	306.6	17.1E	
JUL 5	8 2 48.5	20 42 28.7	10.05586	9.07991	7.739	0.5	16.5	-21.7	291.1	353.1	306.6	15.5E	
JUL 7	8 3 52.2	20 39 32.2	10.06433	9.08018	6.933	0.4	16.5	-21.6	112.4	353.1	306.7	13.8E	
JUL 9	8 4 56.2	20 36 33.6	10.07187	9.08045	6.121	0.4	16.5	-21.5	293.7	353.1	306.8	12.1E	
JUL 11	8 6 0.4	20 33 32.8	10.07847	9.08072	5.305	0.4	16.5	-21.4	115.0	353.1	306.9	10.5E	
JUL 13	8 7 4.7	20 30 30.1	10.08413	9.08099	4.486	0.4	16.5	-21.4	296.3	353.1	306.9	8.8E	
JUL 15	8 8 9.2	20 27 25.3	10.08884	9.08127	3.666	0.4	16.5	-21.3	117.6	353.1	307.0	7.2E	
JUL 17	8 9 13.8	20 24 18.6	10.09260	9.08154	2.845	0.4	16.5	-21.2	298.9	353.1	307.1	5.5E	
JUL 19	8 10 18.5	20 21 10.1	10.09541	9.08182	2.024	0.4	16.5	-21.1	120.2	353.1	307.2	3.9E	
JUL 21	8 11 23.2	20 18 0.2	10.09728	9.08210	1.204	0.4	16.5	-21.0	301.6	353.1	307.2	2.3E	
JUL 23	8 12 27.9	20 14 48.8	10.09820	9.08237	0.384	0.4	16.5	-21.0	122.9	353.1	307.3	0.7E	
JUL 25	8 13 32.6	20 11 36.1	10.09817	9.08265	-0.439	0.4	16.5	-20.9	304.2	353.1	307.4	1.1W	
JUL 27	8 14 37.2	20 8 22.0	10.09719	9.08293	-1.264	0.4	16.5	-20.8	125.5	353.1	307.5	2.7W	
JUL 29	8 15 41.7	20 5 6.6	10.09525	9.08321	-2.091	0.4	16.5	-20.7	306.9	353.1	307.5	4.4W	
JUL 31	8 16 46.1	20 1 50.1	10.09236	9.08349	-2.919	0.4	16.5	-20.6	128.2	353.1	307.6	6.0W	
AUG 2	8 17 50.3	19 58 32.7	10.08851	9.08377	-3.747	0.4	16.5	-20.5	309.6	353.1	307.7	7.7W	
AUG 4	8 18 54.4	19 55 14.5	10.08371	9.08405	-4.573	0.5	16.5	-20.4	130.9	353.1	307.7	9.3W	
AUG 6	8 19 58.2	19 51 55.7	10.07795	9.08433	-5.397	0.5	16.5	-20.4	312.3	353.1	307.8	11.0W	
AUG 8	8 21 1.7	19 48 36.4	10.07124	9.08461	-6.216	0.5	16.5	-20.3	133.6	353.1	307.9	12.7W	
AUG 10	8 22 4.9	19 45 16.8	10.06359	9.08490	-7.029	0.5	16.5	-20.2	315.0	353.1	308.0	14.3W	
AUG 12	8 23 7.7	19 41 56.8	10.05501	9.08518	-7.836	0.5	16.5	-20.1	136.4	353.1	308.0	16.0W	
AUG 14	8 24 10.2	19 38 36.7	10.04550	9.08546	-8.635	0.5	16.5	-20.0	317.8	353.1	308.1	17.7W	
AUG 16	8 25 12.3	19 35 16.7	10.03506	9.08575	-9.426	0.5	16.6	-19.9	139.1	353.1	308.2	19.3W	
AUG 18	8 26 13.9	19 31 57.0	10.02373	9.08604	-10.208	0.5	16.6	-19.9	320.5	353.1	308.3	21.0W	
AUG 20	8 27 15.0	19 28 37.9	10.01149	9.08632	-10.983	0.5	16.6	-19.8	141.9	353.1	308.3	22.7W	
AUG 22	8 28 15.6	19 25 19.2	9.99836	9.08661	-11.751	0.5	16.6	-19.7	323.3	353.1	308.4	24.4W	
AUG 24	8 29 15.7	19 22 1.1	9.98435	9.08690	-12.513	0.5	16.6	-19.6	144.8	353.2	308.5	26.1W	
AUG 26	8 30 15.2	19 18 43.8	9.96946	9.08719	-13.269	0.5	16.7	-19.5	326.2	353.2	308.6	27.7W	
AUG 28	8 31 14.1	19 15 27.4	9.95370	9.08748	-14.017	0.5	16.7	-19.4	147.6	353.2	308.6	29.4W	
AUG 30	8 32 12.3	19 12 12.3	9.93708	9.08777	-14.756	0.6	16.7	-19.4	329.0	353.2	308.7	31.1W	
SEP 1	8 33 9.9	19 8 58.5	9.91961	9.08806	-15.485	0.6	16.8	-19.3	150.5	353.2	308.8	32.8W	
SEP 3	8 34 6.7	19 5 46.3	9.90131	9.08835	-16.201	0.6	16.8	-19.2	331.9	353.2	308.9	34.5W	
SEP 5	8 35 2.8	19 2 35.9	9.88219	9.08864	-16.905	0.6	16.8	-19.1	153.4	353.2	308.9	36.2W	
SEP 7	8 35 58.0	18 59 27.3	9.86227	9.08893	-17.594	0.6	16.9	-19.0	334.8	353.2	309.0	38.0W	
SEP 9	8 36 52.5	18 56 20.8	9.84156	9.08923	-18.266	0.6	16.9	-19.0	156.3	353.2	309.1	39.7W	
SEP 11	8 37 46.0	18 53 16.4	9.82008	9.08952	-18.922	0.6	16.9	-18.9	337.8	353.2	309.1	41.4W	
SEP 13	8 38 38.7	18 50 14.6	9.79785	9.08982	-19.561	0.6	17.0	-18.8	159.2	353.2	309.2	43.1W	
SEP 15	8 39 30.4	18 47 15.6	9.77490	9.09011	-20.182	0.6	17.0	-18.7	340.7	353.2	309.3	44.9W	
SEP 17	8 40 21.2	18 44 19.5	9.75123	9.09041	-20.786	0.6	17.0	-18.7	162.2	353.2	309.4	46.6W	
SEP 19	8 41 10.9	18 41 26.3	9.72688	9.09071	-21.375	0.6	17.1	-18.6	343.7	353.2	309.4	48.4W	
SEP 21	8 41 59.7	18 38 36.2	9.70186	9.09100	-21.948	0.6	17.1	-18.5	165.2	353.2	309.5	50.1W	
SEP 23	8 42 47.3	18 35 49.4	9.67619	9.09130	-22.506	0.6	17.2	-18.5	346.7	353.2	309.6	51.9W	
SEP 25	8 43 33.9	18 33 6.2	9.64988	9.09160	-23.047	0.6	17.2	-18.4	168.3	353.2	309.7	53.7W	
SEP 27	8 44 19.3	18 30 26.8	9.62295	9.09190	-23.568	0.6	17.3	-18.3	349.8	353.2	309.7	55.4W	
SEP 29	8 45 3.6	18 27 51.3	9.59544	9.09220	-24.069	0.6	17.3	-18.3	171.3	353.2	309.8	57.2W	
OCT 1	8 45 46.6	18 25 20.1	9.56736	9.09250	-24.549	0.6	17.4	-18.2	352.9	353.2	309.9	59.0W	
OCT 3	8 46 28.4	18 22 53.3	9.53874	9.09281	-25.005	0.6	17.4	-18.1	174.4	353.2	310.0	60.8W	
OCT 5	8 47 8.9	18 20 30.9	9.50960	9.09311	-25.436	0.6	17.5	-18.1	356.0	353.2	310.0	62.6W	
OCT 7	8 47 48.1	18 18 13.2	9.47999	9.09341	-25.841	0.6	17.5	-18.0	177.6	353.2	310.1	64.4W	
OCT 9	8 48 25.9	18 16 0.4	9.44992	9.09372	-26.220	0.6	17.6	-18.0	359.2	353.2	310.2	66.2W	
OCT 11	8 49 2.4	18 13 52.9	9.41943	9.09402	-26.571	0.6	17.6	-17.9	180.7	353.2	310.3	68.1W	
OCT 13	8 49 37.5	18 11 50.7	9.38854	9.09433	-26.896	0.6	17.7	-17.9	2.3	353.2	310.3	69.9W	
OCT 15	8 50 11.1	18 9 54.1	9.35730	9.09463	-27.194	0.6	17.8	-17.8	183.9	353.2	310.4	71.8W	
OCT 17	8 50 43.2	18 8 3.0	9.32573	9.09494	-27.467	0.6	17.8	-17.8	5.5	353.2	310.5	73.6W	
OCT 19	8 51 13.8	18 6 17.6	9.29386	9.09525	-27.716	0.6	17.9	-17.7	187.2	353.2	310.5	75.5W	
OCT 21	8 51 42.9	18 4 38.1	9.26171	9.09555	-27.939	0.6	17.9	-17.7	8.8	353.2	310.6	77.3W	
OCT 23	8 52 10.5	18 3 4.7	9.22933	9.09586	-28.134	0.6	18.0	-17.7	190.4	353.2	310.7	79.2W	
OCT 25	8 52 36.5	18 1 37.6	9.19673	9.09617	-28.301	0.6	18.1	-17.6	12.0	353.2	310.8	81.1W	
OCT 27	8 53 0.9	18 0 17.0	9.16396	9.09648	-28.438	0.6	18.1	-17.6	193.7	353.2	310.8	83.0W	
OCT 29	8 53 23.6	17 59 3.1	9.13104	9.09679	-28.544	0.5	18.2	-17.6	15.3	353.2	310.9	84.9W	
OCT 31	8 53 44.7	17 57 55.8	9.09803	9.09710	-28.617	0.5	18.3	-17.5	197.0	353.2	311.0	86.8W	
NOV 2	8 54 4.1	17 56 55.3	9.06495	9.09742	-28.657	0.5	18.3	-17.5	18.7	353.2	311.1	88.7W	
NOV 4	8 54 21.7	17 56 1.7	9.03184	9.09773	-28.661	0.5	18.4	-17.5	200.3	353.2	311.1	90.7W	
NOV 6	8 54 37.6	17 55 15.3	8.99875	9.09804	-28.630	0.5	18.5	-17.5	22.0	353.2	311.2	92.6W	
NOV 8	8 54 51.8	17 54 36.1	8.96571	9.09836	-28.564	0.5	18.5	-17.4	203.7	353.2	311.3	94.6W	
NOV 10	8 55 4.2	17 54 4.3	8.93277	9.09867	-28.463	0.5	18.6	-17.4	25.4	353.2	311.4	96.5W	
NOV 12	8 55 14.8	17 53 39.9	8.89997	9.09899	-28.329	0.5	18.7	-17.4	207.1	353.2	311.4	98.5W	
NOV 14	8 55 23.7	17 53 22.7	8.86734	9.09930	-28.163	0.5	18.7	-17.4	28.8	353.2	311.5	100.5W	
NOV 16	8 55 30.7	17 53 12.9	8.83492	9.09962	-27.965	0.5	18.8	-17.4	210.5	353.2	311.6	102.5W	
NOV 18	8 55 35.9	17 53 10.5	8.80274	9.09994	-27.735	0.5	18.9	-17.4	32.2	353.2	311.7	104.4W	
NOV 20	8 55 39.4	17 53 15.6	8.77086	9.10026	-27.472	0.5	18.9	-17.4	213.9	353.2	311.7	106.5W	
NOV 22	8 55 41.0	17 53 28.2	8.73929	9.10057	-27.174	0.4	19.0	-17.4	35.7	353.2	311.8	108.5W	
NOV 24	8 55 40.8	17 53 48.5	8.70809	9.10089	-26.840	0.4	19.1	-17.4	217.4	353.2	311.9	110.5W	
NOV 26	8 55 38.7	17 54 16.2	8.67730	9.10121	-26.471	0.4	19.2	-17.4	39.1	353.2	311.9	112.5W	
NOV 28	8 55 34.9	17 54 51.5	8.64695	9.10154	-26.065	0.4	19.2	-17.4	220.9	353.2	312.0	114.6W	
NOV 30	8 55 29.2	17 55 34.1	8.61710	9.10186	-25.622	0.4	19.3	-17.4	42.6	353.2	312.1	116.6W	
DEC 2	8 55 21.7	17 56 24.0	8.58777	9.10218	-25.140	0.4	19.4	-17.5	224.4	353.2	312.2	118.7W	
DEC 4	8 55 12.4	17 57 21.3	8.55903	9.10250	-24.622	0.4	19.4	-17.5	46.1	353.2	312.2	120.7W	
DEC 6	8 55 1.4	17 58 25.9	8.53091	9.10282	-24.067	0.4	19.5	-17.5	227.9	353.2	312.3	122.8W	
DEC 8	8 54 48.6	17 59 37.6	8.50344	9.10315	-23.478	0.3	19.5	-17.5	49.7	353.2	312.4	124.9W	
DEC 10	8 54 34.0	18 0 56.3	8.47668	9.10347	-22.857	0.3	19.6	-17.6	231.4	353.2	312.5	127.0W	
DEC 12	8 54 17.8	18 2 21.6	8.45065	9.10380	-22.206	0.3	19.7	-17.6	53.2	353.2	312.5	129.1W	
DEC 14	8 53 59.9	18 3 53.4	8.42539	9.10413	-21.524	0.3	19.7	-17.6	235.0	353.2	312.6	131.2W	
DEC 16	8 53 40.4	18 5 31.5	8.40093	9.10445	-20.813	0.							

Date (0 DT)	RA (h m s)	Dec (d ° '")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	8 50 10.6	18 22 0.2	8.23833	9.10709	-14.069	0.2	20.2	-18.0	71.1	353.2	313.3	150.5W
JAN 3	8 49 38.5	18 24 25.3	8.22264	9.10742	-13.104	0.2	20.2	-18.1	252.9	353.2	313.3	152.7W
JAN 5	8 49 5.3	18 26 54.2	8.20807	9.10776	-12.119	0.1	20.2	-18.1	74.6	353.2	313.4	154.8W
JAN 7	8 48 31.0	18 29 26.2	8.19464	9.10809	-11.117	0.1	20.3	-18.2	256.4	353.2	313.5	157.0W
JAN 9	8 47 55.8	18 32 1.2	8.18239	9.10842	-10.099	0.1	20.3	-18.3	78.2	353.2	313.6	159.2W
JAN 11	8 47 19.8	18 34 38.6	8.17131	9.10876	-9.068	0.1	20.3	-18.3	260.0	353.2	313.6	161.4W
JAN 13	8 46 42.9	18 37 18.4	8.16144	9.10909	-8.024	0.1	20.4	-18.4	81.8	353.2	313.7	163.6W
JAN 15	8 46 5.4	18 40 0.0	8.15278	9.10943	-6.968	0.1	20.4	-18.4	263.6	353.2	313.8	165.8W
JAN 17	8 45 27.3	18 42 43.3	8.14534	9.10977	-5.901	0.1	20.4	-18.5	85.3	353.2	313.9	168.0W
JAN 19	8 44 48.6	18 45 27.7	8.13915	9.11011	-4.824	0.0	20.4	-18.6	267.1	353.2	313.9	170.1W
JAN 21	8 44 9.5	18 48 12.9	8.13420	9.11044	-3.738	0.0	20.4	-18.6	88.9	353.2	314.0	172.3W
JAN 23	8 43 30.0	18 50 58.4	8.13051	9.11078	-2.644	0.0	20.4	-18.7	270.6	353.2	314.1	174.5W
JAN 25	8 42 50.2	18 53 44.0	8.12809	9.11112	-1.543	0.0	20.4	-18.8	92.4	353.2	314.2	176.7W
JAN 27	8 42 10.3	18 56 29.2	8.12695	9.11146	-0.438	0.0	20.4	-18.8	274.1	353.2	314.2	178.8W
JAN 29	8 41 30.3	18 59 13.8	8.12708	9.11180	0.670	0.0	20.4	-18.9	95.9	353.2	314.3	178.7E
JAN 31	8 40 50.3	19 1 57.5	8.12849	9.11215	1.777	0.0	20.4	-18.9	277.6	353.2	314.4	176.6E
FEB 2	8 40 10.4	19 4 39.8	8.13118	9.11249	2.879	0.0	20.4	-19.0	99.4	353.2	314.4	174.4E
FEB 4	8 39 30.8	19 7 20.2	8.13513	9.11283	3.973	0.0	20.4	-19.1	281.1	353.2	314.5	172.2E
FEB 6	8 38 51.4	19 9 58.3	8.14035	9.11317	5.057	0.0	20.4	-19.1	102.8	353.2	314.6	170.1E
FEB 8	8 38 12.5	19 12 33.9	8.14681	9.11352	6.130	0.0	20.4	-19.2	284.5	353.2	314.7	167.9E
FEB 10	8 37 34.0	19 15 6.7	8.15450	9.11386	7.192	0.1	20.4	-19.3	106.2	353.2	314.7	165.7E
FEB 12	8 36 56.1	19 17 36.6	8.16342	9.11421	8.240	0.1	20.4	-19.3	287.9	353.2	314.8	163.5E
FEB 14	8 36 18.9	19 20 3.1	8.17353	9.11455	9.275	0.1	20.3	-19.4	109.6	353.2	314.9	161.3E
FEB 16	8 35 42.3	19 22 26.0	8.18483	9.11490	10.295	0.1	20.3	-19.4	291.3	353.2	315.0	159.2E
FEB 18	8 35 6.6	19 24 45.0	8.19731	9.11525	11.300	0.1	20.3	-19.5	113.0	353.1	315.0	157.0E
FEB 20	8 34 31.8	19 26 59.8	8.21093	9.11560	12.288	0.1	20.2	-19.5	294.6	353.1	315.1	154.9E
FEB 22	8 33 58.0	19 29 10.2	8.22568	9.11594	13.259	0.1	20.2	-19.6	116.3	353.1	315.2	152.7E
FEB 24	8 33 25.2	19 31 16.0	8.24155	9.11629	14.211	0.1	20.2	-19.6	297.9	353.1	315.3	150.6E
FEB 26	8 32 53.6	19 33 17.1	8.25850	9.11664	15.141	0.1	20.1	-19.7	119.6	353.1	315.3	148.4E
FEB 28	8 32 23.1	19 35 13.4	8.27652	9.11699	16.048	0.2	20.1	-19.7	301.2	353.1	315.4	146.3E
MAR 2	8 31 53.8	19 37 4.3	8.29556	9.11734	16.928	0.2	20.0	-19.8	122.8	353.1	315.5	144.2E
MAR 4	8 31 25.9	19 38 49.8	8.31561	9.11770	17.779	0.2	20.0	-19.8	304.4	353.1	315.5	142.0E
MAR 6	8 30 59.5	19 40 29.5	8.33662	9.11805	18.600	0.2	19.9	-19.9	126.0	353.1	315.6	139.9E
MAR 8	8 30 34.4	19 42 3.6	8.35857	9.11840	19.390	0.2	19.9	-19.9	307.6	353.1	315.7	137.8E
MAR 10	8 30 10.9	19 43 32.0	8.38140	9.11875	20.151	0.2	19.8	-19.9	129.2	353.1	315.8	135.7E
MAR 12	8 29 48.8	19 44 54.5	8.40510	9.11911	20.881	0.2	19.8	-20.0	310.7	353.1	315.8	133.6E
MAR 14	8 29 28.3	19 46 11.0	8.42963	9.11946	21.582	0.2	19.7	-20.0	132.3	353.1	315.9	131.6E
MAR 16	8 29 9.5	19 47 21.4	8.45495	9.11982	22.253	0.3	19.7	-20.0	313.8	353.1	316.0	129.5E
MAR 18	8 28 52.2	19 48 25.6	8.48103	9.12017	22.894	0.3	19.6	-20.1	135.4	353.1	316.1	127.4E
MAR 20	8 28 36.7	19 49 23.6	8.50782	9.12053	23.505	0.3	19.5	-20.1	316.9	353.1	316.1	125.4E
MAR 22	8 28 22.8	19 50 15.2	8.53531	9.12089	24.085	0.3	19.5	-20.1	138.4	353.1	316.2	123.3E
MAR 24	8 28 10.7	19 51 0.7	8.56345	9.12125	24.635	0.3	19.4	-20.1	319.9	353.1	316.3	121.3E
MAR 26	8 28 0.3	19 51 39.8	8.59221	9.12160	25.153	0.3	19.3	-20.1	141.4	353.1	316.4	119.3E
MAR 28	8 27 51.7	19 52 12.6	8.62155	9.12196	25.636	0.3	19.3	-20.1	322.9	353.1	316.4	117.3E
MAR 30	8 27 44.9	19 52 38.9	8.65142	9.12232	26.084	0.3	19.2	-20.2	144.4	353.1	316.5	115.3E
APR 1	8 27 39.8	19 52 58.6	8.68179	9.12268	26.495	0.4	19.1	-20.2	325.8	353.1	316.6	113.3E
APR 3	8 27 36.7	19 53 11.8	8.71261	9.12304	26.869	0.4	19.1	-20.2	147.3	353.1	316.6	111.3E
APR 5	8 27 35.3	19 53 18.6	8.74385	9.12341	27.208	0.4	19.0	-20.2	328.7	353.1	316.7	109.3E
APR 7	8 27 35.7	19 53 19.0	8.77545	9.12377	27.512	0.4	18.9	-20.2	150.2	353.1	316.8	107.3E
APR 9	8 27 38.0	19 53 13.0	8.80739	9.12413	27.783	0.4	18.9	-20.2	331.6	353.1	316.9	105.4E
APR 11	8 27 42.0	19 53 0.6	8.83963	9.12450	28.021	0.4	18.8	-20.2	153.0	353.1	316.9	103.4E
APR 13	8 27 47.9	19 52 41.9	8.87211	9.12486	28.227	0.4	18.7	-20.2	334.4	353.1	317.0	101.5E
APR 15	8 27 55.5	19 52 16.8	8.90482	9.12522	28.403	0.4	18.7	-20.1	155.8	353.1	317.1	99.6E
APR 17	8 28 4.9	19 51 45.4	8.93772	9.12559	28.548	0.4	18.6	-20.1	337.2	353.1	317.2	97.6E
APR 19	8 28 16.1	19 51 7.8	8.97076	9.12596	28.663	0.5	18.5	-20.1	158.6	353.1	317.2	95.7E
APR 21	8 28 29.0	19 50 24.0	9.00392	9.12632	28.747	0.5	18.5	-20.1	340.0	353.1	317.3	93.8E
APR 23	8 28 43.6	19 49 34.2	9.03716	9.12669	28.800	0.5	18.4	-20.1	161.4	353.1	317.4	91.9E
APR 25	8 29 0.0	19 48 38.3	9.07044	9.12706	28.821	0.5	18.3	-20.1	342.8	353.1	317.5	90.1E
APR 27	8 29 18.1	19 47 36.2	9.10373	9.12743	28.809	0.5	18.3	-20.0	164.1	353.1	317.5	88.2E
APR 29	8 29 37.8	19 46 27.9	9.13698	9.12779	28.763	0.5	18.2	-20.0	345.5	353.1	317.6	86.3E
MAY 1	8 29 59.3	19 45 13.7	9.17017	9.12816	28.684	0.5	18.1	-20.0	166.8	353.1	317.7	84.5E
MAY 3	8 30 22.3	19 43 53.5	9.20324	9.12853	28.575	0.5	18.1	-19.9	348.2	353.1	317.7	82.6E
MAY 5	8 30 47.0	19 42 27.6	9.23617	9.12891	28.436	0.5	18.0	-19.9	169.5	353.1	317.8	80.8E
MAY 7	8 31 13.2	19 40 55.9	9.26892	9.12928	28.268	0.5	17.9	-19.9	350.8	353.1	317.9	78.9E
MAY 9	8 31 41.0	19 39 18.6	9.30146	9.12965	28.075	0.5	17.9	-19.8	172.1	353.1	318.0	77.1E
MAY 11	8 32 10.2	19 37 35.5	9.33377	9.13002	27.855	0.5	17.8	-19.8	353.5	353.1	318.0	75.3E
MAY 13	8 32 41.0	19 35 46.9	9.36581	9.13040	27.611	0.5	17.7	-19.7	174.8	353.1	318.1	73.5E
MAY 15	8 33 13.2	19 33 52.7	9.39755	9.13077	27.343	0.6	17.7	-19.7	356.1	353.1	318.2	71.7E
MAY 17	8 33 46.8	19 31 53.2	9.42897	9.13114	27.052	0.6	17.6	-19.6	177.4	353.1	318.3	69.9E
MAY 19	8 34 21.8	19 29 48.4	9.46003	9.13152	26.737	0.6	17.6	-19.6	358.7	353.1	318.3	68.1E
MAY 21	8 34 58.2	19 27 38.4	9.49073	9.13190	26.398	0.6	17.5	-19.5	180.0	353.1	318.4	66.3E
MAY 23	8 35 35.8	19 25 23.2	9.52101	9.13227	26.033	0.6	17.5	-19.5	1.3	353.1	318.5	64.6E
MAY 25	8 36 14.8	19 23 2.7	9.55086	9.13265	25.642	0.6	17.4	-19.4	182.6	353.2	318.5	62.8E
MAY 27	8 36 55.0	19 20 37.0	9.58024	9.13303	25.226	0.6	17.3	-19.4	3.9	353.2	318.6	61.1E
MAY 29	8 37 36.5	19 18 6.3	9.60913	9.13340	24.786	0.6	17.3	-19.3	185.1	353.2	318.7	59.3E
MAY 31	8 38 19.2	19 15 30.8	9.63749	9.13378	24.323	0.6	17.2	-19.2	6.4	353.2	318.8	57.6E
JUN 2	8 39 3.0	19 12 50.5	9.66531	9.13416	23.839	0.6	17.2	-19.2	187.7	353.2	318.8	55.8E
JUN 4	8 39 47.9	19 10 5.5	9.69256	9.13454	23.335	0.6	17.1	-19.1	9.0	353.2	318.9	54.1E
JUN 6	8 40 33.8	19 7 15.9	9.71921	9.13492	22.813	0.6	17.1	-19.0	190.3	353.2	319.0	52.4E
JUN 8	8 41 20.8	19 4 21.6	9.74525	9.13531	22.273	0.6	17.1	-19.0	11.6	353.2	319.1	50.6E
JUN 10	8 42 8.9	19 1 22.9	9.77066	9.13569	21.718	0.6	17.0	-18.9	192.8	353.2	319.1	48.9E
JUN 12	8 42 57.8	18 58 19.8	9.79542	9.13607	21.147	0.6	17.0	-18.8	14.1	353.2	319.2	47.2E
JUN 14	8 43 47.8	18 55 12.5	9.81951	9.13645	20.561	0.6	16.9	-18.8	195.4	353.2	319.3	45.5E
JUN 16	8 44 38.6	18 52 1.1	9.84292	9.13684	19.960	0.6	16.9	-18.7	16.7	353.2	319.4	43.8E
JUN 18	8 45 30.2	18 48 45.7										

Date (0 DT)	RA (h m s)	[Mean] (d ° ')	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JUL 2	8 51 53.2	18 24 9.7	10.00320	9.13993	14.566	0.6	16.6	-18.0	26.9	353.2	319.9	30.3E	
JUL 4	8 52 50.5	18 20 24.9	10.01960	9.14032	13.834	0.6	16.6	-17.9	208.2	353.2	320.0	28.6E	
JUL 6	8 53 48.3	18 16 36.9	10.03515	9.14071	13.092	0.6	16.6	-17.8	29.4	353.2	320.1	27.0E	
JUL 8	8 54 46.6	18 12 45.8	10.04984	9.14110	12.343	0.6	16.5	-17.7	210.7	353.2	320.2	25.3E	
JUL 10	8 55 45.4	18 8 51.8	10.06367	9.14149	11.587	0.6	16.5	-17.7	32.0	353.2	320.2	23.6E	
JUL 12	8 56 44.7	18 4 55.1	10.07661	9.14188	10.824	0.6	16.5	-17.6	213.3	353.2	320.3	22.0E	
JUL 14	8 57 44.3	18 0 55.8	10.08867	9.14227	10.054	0.6	16.5	-17.5	34.6	353.2	320.4	20.3E	
JUL 16	8 58 44.3	17 56 54.0	10.09984	9.14267	9.274	0.6	16.5	-17.4	215.9	353.2	320.4	18.7E	
JUL 18	8 59 44.7	17 52 49.6	10.11010	9.14306	8.485	0.6	16.4	-17.3	37.2	353.3	320.5	17.0E	
JUL 20	9 0 45.4	17 48 42.8	10.11944	9.14345	7.687	0.6	16.4	-17.2	218.5	353.3	320.6	15.3E	
JUL 22	9 1 46.3	17 44 33.7	10.12785	9.14385	6.881	0.6	16.4	-17.1	39.8	353.3	320.7	13.7E	
JUL 24	9 2 47.5	17 40 22.6	10.13533	9.14424	6.067	0.6	16.4	-17.0	221.1	353.3	320.7	12.0E	
JUL 26	9 3 48.9	17 36 9.6	10.14187	9.14464	5.247	0.6	16.4	-16.9	42.4	353.3	320.8	10.4E	
JUL 28	9 4 50.4	17 31 54.8	10.14746	9.14503	4.423	0.6	16.4	-16.8	223.7	353.3	320.9	8.7E	
JUL 30	9 5 52.1	17 27 38.5	10.15209	9.14543	3.597	0.6	16.4	-16.7	45.1	353.3	321.0	7.1E	
AUG 1	9 6 53.9	17 23 20.6	10.15577	9.14583	2.769	0.6	16.4	-16.6	226.4	353.3	321.0	5.4E	
AUG 3	9 7 55.7	17 19 1.3	10.15849	9.14623	1.940	0.6	16.4	-16.5	47.7	353.3	321.1	3.8E	
AUG 5	9 8 57.6	17 14 40.8	10.16025	9.14663	1.111	0.6	16.4	-16.4	229.0	353.3	321.2	2.2E	
AUG 7	9 9 59.4	17 10 19.3	10.16106	9.14702	0.284	0.6	16.4	-16.3	50.4	353.3	321.2	0.9E	
AUG 9	9 11 1.3	17 5 57.1	10.16091	9.14742	-0.543	0.6	16.4	-16.2	231.7	353.3	321.3	1.5W	
AUG 11	9 12 3.0	17 1 34.2	10.15981	9.14782	-1.369	0.6	16.4	-16.1	53.1	353.3	321.4	3.0W	
AUG 13	9 13 4.7	16 57 10.6	10.15775	9.14823	-2.196	0.6	16.4	-16.0	234.4	353.3	321.5	4.6W	
AUG 15	9 14 6.2	16 52 46.6	10.15474	9.14863	-3.024	0.6	16.4	-15.9	55.8	353.3	321.5	6.3W	
AUG 17	9 15 7.5	16 48 22.1	10.15077	9.14903	-3.854	0.6	16.4	-15.8	237.1	353.4	321.6	7.9W	
AUG 19	9 16 8.7	16 43 57.5	10.14584	9.14943	-4.683	0.6	16.4	-15.7	58.5	353.4	321.7	9.6W	
AUG 21	9 17 9.7	16 39 33.1	10.13995	9.14984	-5.512	0.6	16.4	-15.6	239.9	353.4	321.8	11.3W	
AUG 23	9 18 10.4	16 35 8.9	10.13311	9.15024	-6.337	0.6	16.4	-15.5	61.3	353.4	321.8	12.9W	
AUG 25	9 19 10.7	16 30 45.2	10.12531	9.15064	-7.158	0.6	16.4	-15.4	242.6	353.4	321.9	14.6W	
AUG 27	9 20 10.8	16 26 22.1	10.11658	9.15105	-7.973	0.7	16.4	-15.3	64.0	353.4	322.0	16.3W	
AUG 29	9 21 10.4	16 21 59.8	10.10690	9.15145	-8.782	0.7	16.4	-15.2	245.4	353.4	322.0	18.0W	
AUG 31	9 22 9.7	16 17 38.4	10.09629	9.15186	-9.582	0.7	16.5	-15.1	66.8	353.4	322.1	19.7W	
SEP 2	9 23 8.5	16 13 18.2	10.08477	9.15227	-10.373	0.7	16.5	-15.0	248.2	353.4	322.2	21.3W	
SEP 4	9 24 6.9	16 8 59.4	10.07234	9.15267	-11.155	0.7	16.5	-14.9	69.7	353.4	322.3	23.0W	
SEP 6	9 25 4.8	16 4 42.2	10.05900	9.15308	-11.927	0.7	16.5	-14.8	251.1	353.4	322.3	24.7W	
SEP 8	9 26 2.1	16 0 26.9	10.04479	9.15349	-12.690	0.7	16.5	-14.7	72.5	353.4	322.4	26.4W	
SEP 10	9 26 58.8	15 56 13.4	10.02969	9.15390	-13.446	0.7	16.6	-14.6	253.9	353.5	322.5	28.1W	
SEP 12	9 27 55.0	15 52 1.9	10.01373	9.15431	-14.194	0.7	16.6	-14.5	75.4	353.5	322.6	29.8W	
SEP 14	9 28 50.5	15 47 52.7	9.99691	9.15472	-14.934	0.7	16.6	-14.4	256.8	353.5	322.6	31.5W	
SEP 16	9 29 45.4	15 43 45.9	9.97923	9.15513	-15.665	0.7	16.7	-14.3	78.3	353.5	322.7	33.3W	
SEP 18	9 30 39.6	15 39 41.9	9.96072	9.15554	-16.386	0.7	16.7	-14.2	259.7	353.5	322.8	35.0W	
SEP 20	9 31 33.0	15 35 40.9	9.94139	9.15595	-17.094	0.7	16.7	-14.1	81.2	353.5	322.8	36.7W	
SEP 22	9 32 25.7	15 31 43.1	9.92124	9.15636	-17.788	0.7	16.8	-14.0	262.7	353.5	322.9	38.5W	
SEP 24	9 33 17.5	15 27 48.6	9.90030	9.15678	-18.466	0.7	16.8	-13.9	84.2	353.5	323.0	40.2W	
SEP 26	9 34 8.6	15 23 57.6	9.87859	9.15719	-19.128	0.8	16.8	-13.9	265.6	353.5	323.1	41.9W	
SEP 28	9 34 58.7	15 20 10.4	9.85612	9.15760	-19.772	0.8	16.9	-13.8	87.1	353.5	323.1	43.7W	
SEP 30	9 35 47.9	15 16 27.2	9.83292	9.15802	-20.398	0.8	16.9	-13.7	268.6	353.5	323.2	45.4W	
OCT 2	9 36 36.2	15 12 48.4	9.80901	9.15843	-21.004	0.8	16.9	-13.6	90.2	353.5	323.3	47.2W	
OCT 4	9 37 23.5	15 9 14.0	9.78440	9.15885	-21.592	0.8	17.0	-13.5	271.7	353.5	323.4	49.0W	
OCT 6	9 38 9.8	15 5 44.3	9.75913	9.15927	-22.160	0.8	17.0	-13.4	93.2	353.6	323.4	50.7W	
OCT 8	9 38 55.1	15 2 19.4	9.73322	9.15968	-22.711	0.8	17.1	-13.4	274.7	353.6	323.5	52.5W	
OCT 10	9 39 39.2	14 58 59.4	9.70668	9.16010	-23.245	0.8	17.1	-13.3	96.3	353.6	323.6	54.3W	
OCT 12	9 40 22.4	14 55 44.5	9.67953	9.16052	-23.762	0.8	17.2	-13.2	277.8	353.6	323.6	56.1W	
OCT 14	9 41 4.3	14 52 35.2	9.65179	9.16094	-24.259	0.8	17.2	-13.2	99.4	353.6	323.7	57.9W	
OCT 16	9 41 45.1	14 49 31.5	9.62349	9.16136	-24.734	0.8	17.3	-13.1	280.9	353.6	323.8	59.7W	
OCT 18	9 42 24.7	14 46 33.8	9.59466	9.16177	-25.187	0.8	17.3	-13.0	102.5	353.6	323.9	61.5W	
OCT 20	9 43 3.0	14 43 42.3	9.56532	9.16219	-25.615	0.8	17.4	-13.0	284.0	353.6	323.9	63.4W	
OCT 22	9 43 40.0	14 40 57.0	9.53549	9.16262	-26.018	0.8	17.4	-12.9	105.6	353.6	324.0	65.2W	
OCT 24	9 44 15.8	14 38 18.2	9.50522	9.16304	-26.394	0.8	17.5	-12.8	287.2	353.6	324.1	67.0W	
OCT 26	9 44 50.2	14 35 46.2	9.47453	9.16346	-26.741	0.8	17.5	-12.8	108.8	353.6	324.2	68.9W	
OCT 28	9 45 23.2	14 33 21.1	9.44346	9.16388	-27.060	0.8	17.6	-12.7	290.4	353.6	324.2	70.7W	
OCT 30	9 45 54.8	14 31 3.2	9.41203	9.16430	-27.349	0.8	17.7	-12.7	112.0	353.6	324.3	72.6W	
NOV 1	9 46 25.0	14 28 52.6	9.38029	9.16473	-27.610	0.8	17.7	-12.6	293.6	353.6	324.4	74.5W	
NOV 3	9 46 53.7	14 26 49.6	9.34826	9.16515	-27.843	0.8	17.8	-12.6	115.3	353.6	324.4	76.4W	
NOV 5	9 47 21.0	14 24 54.1	9.31598	9.16558	-28.048	0.8	17.8	-12.5	296.9	353.6	324.5	78.2W	
NOV 7	9 47 46.7	14 23 6.2	9.28347	9.16600	-28.226	0.7	17.9	-12.5	118.5	353.7	324.6	80.1W	
NOV 9	9 48 11.0	14 21 26.2	9.25078	9.16643	-28.377	0.7	18.0	-12.4	300.2	353.7	324.7	82.0W	
NOV 11	9 48 33.7	14 19 54.4	9.21793	9.16685	-28.499	0.7	18.0	-12.4	121.8	353.7	324.7	84.0W	
NOV 13	9 48 54.8	14 18 30.8	9.18495	9.16728	-28.590	0.7	18.1	-12.4	303.5	353.7	324.8	85.9W	
NOV 15	9 49 14.2	14 17 15.8	9.15189	9.16771	-28.649	0.7	18.2	-12.3	125.2	353.7	324.9	87.8W	
NOV 17	9 49 32.1	14 16 9.2	9.11878	9.16813	-28.674	0.7	18.2	-12.3	306.8	353.7	325.0	89.8W	
NOV 19	9 49 48.2	14 15 11.2	9.08566	9.16856	-28.665	0.7	18.3	-12.3	128.5	353.7	325.0	91.7W	
NOV 21	9 50 2.7	14 14 22.0	9.05257	9.16899	-28.620	0.7	18.4	-12.3	310.2	353.7	325.1	93.7W	
NOV 23	9 50 15.5	14 13 41.7	9.01956	9.16942	-28.538	0.7	18.4	-12.3	131.9	353.7	325.2	95.6W	
NOV 25	9 50 26.7	14 13 10.3	8.98666	9.16985	-28.420	0.7	18.5	-12.2	313.6	353.7	325.2	97.6W	
NOV 27	9 50 36.1	14 12 48.0	8.95392	9.17028	-28.266	0.7	18.6	-12.2	135.3	353.7	325.3	99.6W	
NOV 29	9 50 43.7	14 12 34.9	8.92137	9.17071	-28.076	0.7	18.6	-12.2	317.0	353.7	325.4	101.6W	
DEC 1	9 50 49.6	14 12 30.8	8.88907	9.17114	-27.852	0.7	18.7	-12.2	138.7	353.7	325.5	103.6W	
DEC 3	9 50 53.8	14 12 35.6	8.85704	9.17158	-27.595	0.6	18.8	-12.2	320.4	353.7	325.5	105.6W	
DEC 5	9 50 56.2	14 12 49.4	8.82533	9.17201	-27.306	0.6	18.8	-12.2	142.1	353.7	325.6	107.6W	
DEC 7	9 50 57.0	14 13 12.3	8.79397	9.17244	-26.983	0.6	18.9	-12.2	323.9	353.7	325.7	109.7W	
DEC 9	9 50 56.0	14 13 44.2	8.76300	9.17287	-26.627	0.6	19.0	-12.2	145.6	353.7	325.8	111.7W	
DEC 11	9 50 53.2	14 14 25.3	8.73247	9.17331	-26.236	0.6	19.0	-12.3	327.4	353.7	325.8	113.7W	
DEC 13	9 50 48.7	14 15 15.3	8.70241	9.17374	-25.809	0.6	19.1	-12.3	149.1	353.7	325.9	115.8W	
DEC 15	9 50 42.4	14 16 14.2	8.67286	9.17418	-25.345	0.6	19.2	-12.3	330.9	353.7	326.0	117.9W	
DEC 17	9 50 34.4	14 17 21.9	8.64387	9.17461	-24.								

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	19 50	8.9	-21-31-52.1	20.63761	19.69128	8.196	5.9	3.4	-51.5	11.8	272.6	309.4	15.4E
JAN 5	19 51	7.6	-21-29-18.4	20.65432	19.69190	6.264	5.9	3.4	-51.3	216.5	272.5	309.4	11.5E
JAN 9	19 52	6.9	-21-26-42.2	20.66654	19.69252	4.313	5.9	3.4	-51.0	61.2	272.3	309.5	7.7E
JAN 13	19 53	6.5	-21-24 -4.0	20.67425	19.69314	2.354	5.9	3.4	-50.8	265.9	272.2	309.5	3.9E
JAN 17	19 54	6.3	-21-21-24.4	20.67742	19.69376	0.393	5.9	3.4	-50.6	110.6	272.0	309.6	0.5E
JAN 21	19 55	6.1	-21-18-44.0	20.67607	19.69438	-1.566	5.9	3.4	-50.3	315.3	271.9	309.6	3.9W
JAN 25	19 56	5.6	-21-16 -3.1	20.67019	19.69500	-3.523	5.9	3.4	-50.1	160.0	271.7	309.7	7.7W
JAN 29	19 57	4.8	-21-13-22.2	20.65980	19.69562	-5.473	5.9	3.4	-49.9	4.8	271.6	309.7	11.5W
FEB 2	19 58	3.3	-21-10-42.5	20.64493	19.69624	-7.397	5.9	3.4	-49.7	209.6	271.4	309.7	15.3W
FEB 6	19 59	1.0	-21 -8 -4.1	20.62566	19.69686	-9.279	5.9	3.4	-49.4	54.3	271.3	309.8	19.2W
FEB 10	19 59	57.6	-21 -5-27.6	20.60211	19.69747	-11.109	5.9	3.4	-49.2	259.1	271.1	309.8	23.0W
FEB 14	20 0	53.0	-21 -2-53.8	20.57439	19.69809	-12.881	5.9	3.4	-49.0	103.9	271.0	309.9	26.8W
FEB 18	20 1	47.0	-21 0-23.4	20.54264	19.69871	-14.595	5.8	3.4	-48.8	308.7	270.9	309.9	30.6W
FEB 22	20 2	39.4	-20-57-56.5	20.50700	19.69932	-16.251	5.8	3.4	-48.6	153.5	270.7	310.0	34.5W
FEB 26	20 3	30.2	-20-55-34.0	20.46761	19.69994	-17.842	5.8	3.4	-48.4	358.3	270.6	310.0	38.3W
MAR 2	20 4	18.9	-20-53-16.7	20.42463	19.70055	-19.353	5.8	3.5	-48.2	203.2	270.5	310.1	42.1W
MAR 6	20 5	5.6	-20-51 -4.9	20.37827	19.70117	-20.768	5.8	3.5	-48.0	48.0	270.4	310.1	45.9W
MAR 10	20 5	50.0	-20-48-59.2	20.32876	19.70178	-22.081	5.8	3.5	-47.9	252.8	270.3	310.1	49.8W
MAR 14	20 6	32.1	-20-47 -0.4	20.27633	19.70240	-23.289	5.8	3.5	-47.7	97.7	270.2	310.2	53.6W
MAR 18	20 7	11.6	-20-45 -8.7	20.22124	19.70301	-24.394	5.8	3.5	-47.5	302.5	270.1	310.2	57.4W
MAR 22	20 7	48.4	-20-43-24.5	20.16370	19.70363	-25.399	5.8	3.5	-47.4	147.4	270.0	310.3	61.2W
MAR 26	20 8	22.6	-20-41-48.4	20.10397	19.70424	-26.297	5.8	3.5	-47.3	352.2	269.9	310.3	65.1W
MAR 30	20 8	53.8	-20-40-21.2	20.04229	19.70485	-27.076	5.8	3.5	-47.1	197.1	269.8	310.4	68.9W
APR 3	20 9	21.9	-20-39 -2.8	19.97897	19.70546	-27.725	5.8	3.5	-47.0	41.9	269.8	310.4	72.7W
APR 7	20 9	47.1	-20-37-53.7	19.91430	19.70607	-28.239	5.8	3.5	-46.9	246.8	269.7	310.5	76.6W
APR 11	20 10	9.0	-20-36-54.4	19.84860	19.70669	-28.622	5.8	3.6	-46.8	91.6	269.7	310.5	80.4W
APR 15	20 10	27.7	-20-36 -5.0	19.78215	19.70730	-28.877	5.8	3.6	-46.8	296.5	269.6	310.5	84.3W
APR 19	20 10	43.2	-20-35-25.3	19.71527	19.70791	-29.011	5.8	3.6	-46.7	141.3	269.6	310.6	88.1W
APR 23	20 10	55.3	-20-34-56.1	19.64821	19.70852	-29.020	5.8	3.6	-46.7	346.2	269.6	310.6	92.0W
APR 27	20 11	4.1	-20-34-37.3	19.58129	19.70913	-28.893	5.8	3.6	-46.6	191.0	269.6	310.7	95.8W
MAY 1	20 11	9.5	-20-34-28.8	19.51482	19.70973	-28.624	5.7	3.6	-46.6	35.9	269.5	310.7	99.7W
MAY 5	20 11	11.6	-20-34-30.6	19.44914	19.71034	-28.215	5.7	3.6	-46.6	240.7	269.5	310.8	103.6W
MAY 9	20 11	10.3	-20-34-42.9	19.38456	19.71095	-27.671	5.7	3.6	-46.6	85.5	269.5	310.8	107.5W
MAY 13	20 11	5.7	-20-35 -5.3	19.32138	19.71156	-27.002	5.7	3.6	-46.6	290.3	269.6	310.9	111.3W
MAY 17	20 10	57.9	-20-35-37.3	19.25989	19.71217	-26.217	5.7	3.7	-46.7	135.1	269.6	310.9	115.2W
MAY 21	20 10	47.0	-20-36-19.1	19.20034	19.71277	-25.314	5.7	3.7	-46.7	339.9	269.6	310.9	119.1W
MAY 25	20 10	32.9	-20-37-10.4	19.14302	19.71338	-24.286	5.7	3.7	-46.8	184.7	269.6	311.0	123.0W
MAY 29	20 10	15.8	-20-38-10.5	19.08822	19.71398	-23.134	5.7	3.7	-46.8	29.5	269.7	311.0	126.9W
JUN 2	20 9	55.8	-20-39-19.1	19.03622	19.71459	-21.862	5.7	3.7	-46.9	234.3	269.7	311.1	130.8W
JUN 6	20 9	33.0	-20-40-35.9	18.98729	19.71520	-20.483	5.7	3.7	-47.0	79.0	269.8	311.1	134.8W
JUN 10	20 9	7.7	-20-41-60.0	18.94165	19.71580	-19.009	5.7	3.7	-47.1	283.7	269.9	311.2	138.7W
JUN 14	20 8	39.9	-20-43-30.6	18.89952	19.71640	-17.453	5.7	3.7	-47.2	128.5	269.9	311.2	142.6W
JUN 18	20 8	9.9	-20-45 -7.7	18.86107	19.71701	-15.816	5.7	3.7	-47.3	333.2	270.0	311.3	146.6W
JUN 22	20 7	37.8	-20-46-50.2	18.82650	19.71761	-14.093	5.7	3.7	-47.4	177.9	270.1	311.3	150.5W
JUN 26	20 7	3.8	-20-48-37.5	18.79601	19.71821	-12.290	5.7	3.7	-47.6	22.6	270.2	311.3	154.5W
JUN 30	20 6	28.2	-20-50-28.9	18.76977	19.71882	-10.418	5.7	3.8	-47.7	227.2	270.2	311.4	158.4W
JUL 4	20 5	51.2	-20-52-23.6	18.74791	19.71942	-8.493	5.7	3.8	-47.8	71.9	270.3	311.4	162.4W
JUL 8	20 5	13.0	-20-54-20.6	18.73055	19.72002	-6.529	5.6	3.8	-48.0	276.5	270.4	311.5	166.3W
JUL 12	20 4	33.9	-20-56-19.0	18.71776	19.72062	-4.541	5.6	3.8	-48.1	121.2	270.5	311.5	170.3W
JUL 16	20 3	54.2	-20-58-18.6	18.70958	19.72122	-2.531	5.6	3.8	-48.3	325.8	270.6	311.6	174.3W
JUL 20	20 3	14.0	-21 0-18.2	18.70607	19.72182	-0.498	5.6	3.8	-48.5	170.4	270.7	311.6	178.2W
JUL 24	20 2	33.6	-21 -2-17.0	18.70728	19.72242	1.549	5.6	3.8	-48.6	14.9	270.8	311.7	177.7E
JUL 28	20 1	53.4	-21 -4-14.4	18.71323	19.72302	3.597	5.6	3.8	-48.8	219.5	270.9	311.7	173.7E
AUG 1	20 1	13.6	-21 -6 -9.6	18.72388	19.72362	5.629	5.6	3.8	-48.9	64.1	271.0	311.8	169.8E
AUG 5	20 0	34.4	-21 -8 -1.6	18.73920	19.72422	7.628	5.7	3.8	-49.1	268.6	271.1	311.8	165.8E
AUG 9	19 59	56.2	-21 -9-49.9	18.75909	19.72482	9.583	5.7	3.8	-49.2	113.2	271.2	311.8	161.8E
AUG 13	19 59	19.1	-21-11-34.0	18.78344	19.72541	11.492	5.7	3.8	-49.4	317.7	271.3	311.9	157.8E
AUG 17	19 58	43.4	-21-13-13.0	18.81215	19.72601	13.355	5.7	3.7	-49.5	162.2	271.4	311.9	153.8E
AUG 21	19 58	9.4	-21-14-46.4	18.84510	19.72661	15.165	5.7	3.7	-49.6	6.7	271.5	312.0	149.9E
AUG 25	19 57	37.2	-21-16-13.9	18.88215	19.72720	16.906	5.7	3.7	-49.8	211.2	271.6	312.0	145.9E
AUG 29	19 57	7.1	-21-17-34.7	18.92314	19.72780	18.564	5.7	3.7	-49.9	55.7	271.6	312.1	141.9E
SEP 2	19 56	39.4	-21-18-48.1	18.96785	19.72840	20.124	5.7	3.7	-50.0	260.1	271.7	312.1	137.9E
SEP 6	19 56	14.2	-21-19-54.1	19.01604	19.72899	21.580	5.7	3.7	-50.1	104.6	271.8	312.2	134.0E
SEP 10	19 55	51.6	-21-20-52.4	19.06747	19.72959	22.934	5.7	3.7	-50.2	309.1	271.8	312.2	130.0E
SEP 14	19 55	31.8	-21-21-42.3	19.12192	19.73018	24.188	5.7	3.7	-50.2	153.5	271.9	312.2	126.0E
SEP 18	19 55	15.0	-21-22-23.7	19.17915	19.73077	25.335	5.7	3.7	-50.3	358.0	271.9	312.3	122.1E
SEP 22	19 55	1.2	-21-22-56.5	19.23889	19.73137	26.365	5.7	3.7	-50.4	202.4	272.0	312.3	118.1E
SEP 26	19 54	50.6	-21-23-20.3	19.30086	19.73196	27.265	5.7	3.7	-50.4	46.9	272.0	312.4	114.1E
SEP 30	19 54	43.4	-21-23-34.7	19.36475	19.73255	28.027	5.7	3.6	-50.4	251.3	272.0	312.4	110.2E
OCT 4	19 54	39.5	-21-23-40.0	19.43025	19.73314	28.649	5.7	3.6	-50.4	95.8	272.0	312.5	106.2E
OCT 8	19 54	39.0	-21-23-36.1	19.49702	19.73374	29.140	5.7	3.6	-50.5	300.2	272.0	312.5	102.3E
OCT 12	19 54	41.9	-21-23-22.7	19.56479	19.73433	29.504	5.8	3.6	-50.4	144.7	272.0	312.6	98.3E
OCT 16	19 54	48.2	-21-22-59.9	19.63324	19.73492	29.737	5.8	3.6	-50.4	349.1	272.0	312.6	94.4E
OCT 20	19 54	58.0	-21-22-27.8	19.70208	19.73551	29.833	5.8	3.6	-50.4	193.6	272.0	312.6	90.5E
OCT 24	19 55	11.2	-21-21-46.3	19.77097	19.73610	29.787	5.8	3.6	-50.3	38.0	271.9	312.7	86.6E
OCT 28	19 55	27.8	-21-20-55.2	19.83959	19.73669	29.591	5.8	3.6	-50.3	242.5	271.9	312.7	82.6E
NOV 1	19 55	47.8	-21-19-55.2	19.90758	19.73727	29.254	5.8	3.5	-50.2	87.0	271.8	312.8	78.7E
NOV 5	19 56	11.1	-21-18-46.1	19.97465	19.73786	28.787	5.8	3.5	-50.1	291.5	271.8	312.8	74.8E
NOV 9	19 56	37.5	-21-17-28.1	20.04050	19.73845	28.198	5.8	3.5	-50.0	135.9	271.7	312.9	70.9E
NOV 13	19 57	7.1	-21-16 -1.4	20.10485	19.73904	27.487	5.8	3.5	-49.9	340.4	271.6	312.9	67.0E
NOV 17	19 57	39.6	-21-14-26.4	20.16741	19.73962	26.652	5.8	3.5	-49.8	184.9	271.5	313.0	63.1E
NOV 21	19 58	15.0	-21-12-43.0	20.22789	19.74021	25.691	5.8	3.5	-49.6	29.5	271.4	313.	

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 4	20 7 12.1	-20-46-16.0	20.68671	19.74463	8.815	5.9	3.4	-47.5	119.9	270.1	313.5	16.6E	
JAN 8	20 8 9.8	-20-43-21.9	20.70488	19.74721	6.913	5.9	3.4	-47.3	324.5	270.0	313.5	12.8E	
JAN 12	20 9 8.0	-20-40-25.2	20.71863	19.74779	4.982	5.9	3.4	-47.1	169.2	269.8	313.6	9.0E	
JAN 16	20 10 6.7	-20-37-25.9	20.72789	19.74837	3.025	5.9	3.4	-46.9	13.9	269.7	313.6	5.1E	
JAN 20	20 11 5.7	-20-34-25.0	20.73260	19.74895	1.048	5.9	3.4	-46.6	218.6	269.5	313.7	1.4E	
JAN 24	20 12 4.7	-20-31-23.3	20.73273	19.74953	-0.933	5.9	3.4	-46.4	63.3	269.4	313.7	2.6W	
JAN 28	20 13 3.5	-20-28-21.2	20.72830	19.75011	-2.898	5.9	3.4	-46.2	268.0	269.3	313.8	6.4W	
FEB 1	20 14 1.9	-20-25-19.3	20.71937	19.75068	-4.838	5.9	3.4	-45.9	112.8	269.1	313.8	10.3W	
FEB 5	20 14 59.8	-20-22-18.4	20.70598	19.75126	-6.750	5.9	3.4	-45.7	317.5	269.0	313.8	14.1W	
FEB 9	20 15 56.9	-20-19-19.2	20.68821	19.75184	-8.630	5.9	3.4	-45.5	162.3	268.9	313.9	17.9W	
FEB 13	20 16 53.1	-20-16-21.9	20.66613	19.75242	-10.478	5.9	3.4	-45.3	7.0	268.8	313.9	21.7W	
FEB 17	20 17 48.2	-20-13-27.5	20.63983	19.75299	-12.286	5.9	3.4	-45.0	211.8	268.6	314.0	25.5W	
FEB 21	20 18 41.9	-20-10-36.9	20.60941	19.75357	-14.038	5.9	3.4	-44.8	56.6	268.5	314.0	29.4W	
FEB 25	20 19 34.1	-20-7-50.4	20.57503	19.75414	-15.715	5.9	3.4	-44.6	261.4	268.4	314.1	33.2W	
FEB 29	20 20 24.7	-20-5-8.8	20.53687	19.75472	-17.312	5.9	3.4	-44.4	106.2	268.3	314.1	37.0W	
MAR 4	20 21 13.3	-20-2-32.9	20.49511	19.75529	-18.828	5.9	3.4	-44.2	311.0	268.2	314.2	40.8W	
MAR 8	20 22 0.0	-20-0-3.1	20.44994	19.75587	-20.261	5.8	3.4	-44.1	155.8	268.1	314.2	44.6W	
MAR 12	20 22 44.6	-19-57-39.8	20.40156	19.75644	-21.612	5.8	3.5	-43.9	0.7	268.0	314.2	48.4W	
MAR 16	20 23 26.9	-19-55-23.9	20.35016	19.75701	-22.873	5.8	3.5	-43.7	205.5	267.9	314.3	52.3W	
MAR 20	20 24 6.7	-19-53-16.1	20.29596	19.75758	-24.030	5.8	3.5	-43.6	50.3	267.8	314.3	56.1W	
MAR 24	20 24 43.9	-19-51-16.6	20.23923	19.75816	-25.070	5.8	3.5	-43.4	255.2	267.7	314.4	59.9W	
MAR 28	20 25 18.5	-19-49-26.1	20.18023	19.75873	-25.988	5.8	3.5	-43.3	100.0	267.7	314.4	63.7W	
APR 1	20 25 50.2	-19-47-45.3	20.11924	19.75930	-26.788	5.8	3.5	-43.1	304.9	267.6	314.5	67.6W	
APR 5	20 26 19.0	-19-46-14.1	20.05655	19.75987	-27.471	5.8	3.5	-43.0	149.7	267.5	314.5	71.4W	
APR 9	20 26 44.8	-19-44-53.0	19.99241	19.76044	-28.040	5.8	3.5	-42.9	354.6	267.5	314.6	75.2W	
APR 13	20 27 7.6	-19-43-42.7	19.92709	19.76101	-28.490	5.8	3.5	-42.8	199.4	267.4	314.6	79.0W	
APR 17	20 27 27.2	-19-42-43.3	19.86088	19.76158	-28.807	5.8	3.5	-42.8	44.3	267.4	314.6	82.9W	
APR 21	20 27 43.6	-19-41-54.9	19.79410	19.76215	-28.984	5.8	3.6	-42.7	249.1	267.4	314.7	86.7W	
APR 25	20 27 56.7	-19-41-17.9	19.72707	19.76272	-29.021	5.8	3.6	-42.6	94.0	267.3	314.7	90.6W	
APR 29	20 28 6.5	-19-40-52.5	19.66011	19.76329	-28.925	5.8	3.6	-42.6	298.8	267.3	314.8	94.4W	
MAY 3	20 28 13.1	-19-40-38.4	19.59352	19.76385	-28.700	5.8	3.6	-42.6	143.6	267.3	314.8	98.3W	
MAY 7	20 28 16.3	-19-40-35.6	19.52760	19.76442	-28.354	5.8	3.6	-42.6	348.5	267.3	314.9	102.1W	
MAY 11	20 28 16.3	-19-40-44.4	19.46261	19.76499	-27.883	5.7	3.6	-42.6	193.3	267.3	314.9	106.0W	
MAY 15	20 28 13.0	-19-41-4.6	19.39887	19.76555	-27.276	5.7	3.6	-42.6	38.1	267.3	315.0	109.9W	
MAY 19	20 28 6.5	-19-41-35.7	19.33669	19.76612	-26.532	5.7	3.6	-42.6	242.9	267.3	315.0	113.8W	
MAY 23	20 27 56.8	-19-42-17.8	19.27638	19.76668	-25.656	5.7	3.7	-42.6	87.7	267.3	315.0	117.6W	
MAY 27	20 27 44.0	-19-43-10.5	19.21824	19.76725	-24.659	5.7	3.7	-42.7	292.5	267.4	315.1	121.5W	
MAY 31	20 27 28.2	-19-44-13.1	19.16253	19.76781	-23.550	5.7	3.7	-42.8	137.3	267.4	315.1	125.4W	
JUN 4	20 27 9.6	-19-45-25.2	19.10951	19.76837	-22.338	5.7	3.7	-42.8	342.1	267.5	315.2	129.3W	
JUN 8	20 26 48.2	-19-46-46.7	19.05940	19.76894	-21.023	5.7	3.7	-42.9	186.8	267.5	315.2	133.3W	
JUN 12	20 26 24.2	-19-48-16.6	19.01245	19.76950	-19.598	5.7	3.7	-43.0	31.6	267.6	315.3	137.2W	
JUN 16	20 25 57.7	-19-49-54.4	18.96893	19.77006	-18.067	5.7	3.7	-43.1	236.3	267.6	315.3	141.1W	
JUN 20	20 25 28.9	-19-51-39.6	18.92905	19.77062	-16.442	5.7	3.7	-43.2	81.0	267.7	315.4	145.0W	
JUN 24	20 24 57.9	-19-53-31.3	18.89302	19.77118	-14.735	5.7	3.7	-43.4	285.8	267.7	315.4	149.0W	
JUN 28	20 24 25.1	-19-55-28.4	18.86101	19.77174	-12.961	5.7	3.7	-43.5	130.4	267.8	315.4	152.9W	
JUL 2	20 23 50.6	-19-57-30.4	18.83317	19.77230	-11.132	5.7	3.7	-43.6	335.1	267.9	315.5	156.9W	
JUL 6	20 23 14.6	-19-59-36.6	18.80961	19.77286	-9.247	5.7	3.7	-43.8	179.8	268.0	315.5	160.8W	
JUL 10	20 22 37.3	-20-1-46.0	18.79048	19.77342	-7.306	5.7	3.8	-43.9	24.4	268.1	315.6	164.8W	
JUL 14	20 21 59.1	-20-3-57.7	18.77589	19.77398	-5.316	5.7	3.8	-44.1	229.1	268.1	315.6	168.8W	
JUL 18	20 21 20.0	-20-6-10.9	18.76594	19.77454	-3.292	5.7	3.8	-44.2	73.7	268.2	315.7	172.7W	
JUL 22	20 20 40.4	-20-8-24.7	18.76069	19.77509	-1.251	5.7	3.8	-44.4	278.3	268.3	315.7	176.7W	
JUL 26	20 20 0.6	-20-10-38.0	18.76015	19.77565	0.791	5.7	3.8	-44.5	122.9	268.4	315.8	179.1E	
JUL 30	20 19 20.9	-20-12-49.9	18.76433	19.77621	2.824	5.7	3.8	-44.7	327.5	268.5	315.8	175.3E	
AUG 3	20 18 41.4	-20-15-0.0	18.77319	19.77676	4.845	5.7	3.8	-44.8	172.1	268.6	315.8	171.3E	
AUG 7	20 18 2.5	-20-17-7.1	18.78670	19.77732	6.856	5.7	3.8	-45.0	16.6	268.7	315.9	167.3E	
AUG 11	20 17 24.3	-20-19-10.4	18.80484	19.77787	8.845	5.7	3.7	-45.1	221.2	268.8	315.9	163.3E	
AUG 15	20 16 47.2	-20-21-9.5	18.82753	19.77843	10.795	5.7	3.7	-45.3	65.7	268.8	316.0	159.3E	
AUG 19	20 16 11.4	-20-23-3.2	18.85467	19.77898	12.692	5.7	3.7	-45.4	270.2	268.9	316.0	155.4E	
AUG 23	20 15 37.1	-20-24-50.8	18.88612	19.77953	14.520	5.7	3.7	-45.6	114.7	269.0	316.1	151.4E	
AUG 27	20 15 4.7	-20-26-31.8	18.92170	19.78008	16.271	5.7	3.7	-45.7	319.2	269.1	316.1	147.4E	
AUG 31	20 14 34.2	-20-28-5.9	18.96123	19.78064	17.947	5.7	3.7	-45.8	163.7	269.1	316.2	143.4E	
SEP 4	20 14 5.9	-20-29-32.0	19.00456	19.78119	19.547	5.7	3.7	-45.9	8.2	269.2	316.2	139.4E	
SEP 8	20 13 39.9	-20-30-50.0	19.05148	19.78174	21.062	5.7	3.7	-46.0	212.7	269.3	316.2	135.4E	
SEP 12	20 13 16.6	-20-31-59.4	19.10179	19.78229	22.478	5.7	3.7	-46.1	57.2	269.3	316.3	131.4E	
SEP 16	20 12 55.9	-20-32-59.5	19.15525	19.78284	23.781	5.7	3.7	-46.2	261.6	269.4	316.3	127.5E	
SEP 20	20 12 38.2	-20-33-50.0	19.21157	19.78339	24.961	5.7	3.7	-46.3	106.1	269.4	316.4	123.5E	
SEP 24	20 12 23.5	-20-34-30.8	19.27048	19.78394	26.016	5.7	3.7	-46.3	310.5	269.4	316.4	119.5E	
SEP 28	20 12 11.9	-20-35-1.7	19.33168	19.78448	26.950	5.7	3.6	-46.4	155.0	269.5	316.5	115.6E	
OCT 2	20 12 3.5	-20-35-22.1	19.39490	19.78503	27.767	5.7	3.6	-46.4	359.4	269.5	316.5	111.6E	
OCT 6	20 11 58.4	-20-35-32.2	19.45987	19.78558	28.459	5.7	3.6	-46.4	203.9	269.5	316.6	107.6E	
OCT 10	20 11 56.6	-20-35-31.9	19.52629	19.78613	29.017	5.8	3.6	-46.4	48.3	269.5	316.6	103.7E	
OCT 14	20 11 58.1	-20-35-20.8	19.59383	19.78667	29.432	5.8	3.6	-46.4	252.8	269.5	316.6	99.7E	
OCT 18	20 12 3.2	-20-34-58.8	19.66216	19.78722	29.699	5.8	3.6	-46.4	97.2	269.5	316.7	95.8E	
OCT 22	20 12 11.6	-20-34-26.4	19.73094	19.78777	29.822	5.8	3.6	-46.4	301.7	269.5	316.7	91.8E	
OCT 26	20 12 23.5	-20-33-43.4	19.79985	19.78831	29.811	5.8	3.6	-46.3	146.1	269.4	316.8	87.9E	
OCT 30	20 12 38.7	-20-32-49.7	19.86858	19.78885	29.673	5.8	3.5	-46.3	350.6	269.4	316.8	84.0E	
NOV 3	20 12 57.2	-20-31-45.6	19.93685	19.78940	29.402	5.8	3.5	-46.2	195.1	269.3	316.9	80.0E	
NOV 7	20 13 18.9	-20-30-31.4	20.00433	19.78994	28.995	5.8	3.5	-46.1	39.5	269.3	316.9	76.1E	
NOV 11	20 13 43.9	-20-29-6.9	20.07071	19.79048	28.448	5.8	3.5	-46.0	244.0	269.2	317.0	72.2E	
NOV 15	20 14 12.0	-20-27-32.4	20.13566	19.79103	27.761	5.8	3.5	-45.9	88.5	269.2	317.0	68.3E	
NOV 19	20 14 43.1	-20-25-48.5	20.19888	19.79157	26.944	5.8	3.5	-45.8	293.0	269.1	317.0	64.4E	
NOV 23	20 15 17.1	-20-23-55.2	20.26007	19.79211	26.011	5.8	3.5	-45.6	137.5	269.0	317.1	60.5E	
NOV 27	20 15 53.8	-20-21-52.8	20.31898	19.79265	24.971	5.8	3.5	-45.5	342.0	268.9	317.1	56.6E	
DEC 1	20 16 33.2	-20-1											

Date (0 DT)	RA (h m s)	Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	20 23 3.9	-19-57-51.1	20.707770	19.797749	11.308	5.9	3.4	-43.8	23.2	268.0	317.5	21.7E
JAN 6	20 23 59.6	-19-54-41.8	20.731688	19.798033	9.445	5.9	3.4	-43.6	227.8	267.8	317.6	17.9E
JAN 10	20 24 56.2	-19-51-28.7	20.75130	19.79856	7.534	5.9	3.4	-43.4	72.4	267.7	317.6	14.0E
JAN 14	20 25 53.5	-19-48-12.7	20.76647	19.79910	5.592	5.9	3.4	-43.1	277.1	267.6	317.7	10.2E
JAN 18	20 26 51.2	-19-44-54.1	20.77714	19.79963	3.638	5.9	3.4	-42.9	121.8	267.5	317.7	6.3E
JAN 22	20 27 49.2	-19-41-33.7	20.78329	19.80017	1.680	5.9	3.4	-42.7	326.5	267.3	317.8	2.5E
JAN 26	20 28 47.3	-19-38-12.3	20.78491	19.80070	-0.279	5.9	3.4	-42.4	171.2	267.2	317.8	1.5W
JAN 30	20 29 45.3	-19-34-50.5	20.78200	19.80123	-2.236	5.9	3.4	-42.2	15.9	267.1	317.8	5.2W
FEB 3	20 30 43.0	-19-31-28.6	20.77458	19.80177	-4.189	5.9	3.4	-42.0	220.6	267.0	317.9	9.0W
FEB 7	20 31 40.3	-19-28-7.8	20.76267	19.80230	-6.128	5.9	3.4	-41.8	65.3	266.9	317.9	12.9W
FEB 11	20 32 36.8	-19-24-48.8	20.74630	19.80283	-8.035	5.9	3.4	-41.5	270.1	266.7	318.0	16.7W
FEB 15	20 33 32.5	-19-21-32.1	20.72558	19.80336	-9.894	5.9	3.4	-41.3	114.8	266.6	318.0	20.5W
FEB 19	20 34 27.1	-19-18-18.6	20.70063	19.80389	-11.698	5.9	3.4	-41.1	319.6	266.5	318.1	24.3W
FEB 23	20 35 20.4	-19-15-9.1	20.67158	19.80442	-13.446	5.9	3.4	-40.9	164.4	266.4	318.1	28.1W
FEB 27	20 36 12.4	-19-12-4.0	20.63856	19.80495	-15.136	5.9	3.4	-40.7	9.1	266.3	318.1	31.9W
MAR 3	20 37 2.7	-19-9-4.0	20.60170	19.80548	-16.765	5.9	3.4	-40.5	213.9	266.2	318.2	35.7W
MAR 7	20 37 51.4	-19-6-10.0	20.56115	19.80600	-18.326	5.9	3.4	-40.3	58.7	266.1	318.2	39.5W
MAR 11	20 38 38.0	-19-3-22.9	20.51710	19.80653	-19.801	5.9	3.4	-40.1	263.6	266.0	318.3	43.4W
MAR 15	20 39 22.7	-19-0-42.8	20.46975	19.80706	-21.176	5.9	3.4	-39.9	108.4	265.9	318.3	47.2W
MAR 19	20 40 5.1	-18-58-10.8	20.41934	19.80758	-22.449	5.9	3.5	-39.7	313.2	265.8	318.4	51.6W
MAR 23	20 40 45.1	-18-55-47.4	20.36611	19.80811	-23.620	5.8	3.5	-39.6	158.0	265.8	318.4	54.8W
MAR 27	20 41 22.6	-18-53-33.1	20.31029	19.80863	-24.690	5.8	3.5	-39.4	2.9	265.7	318.5	58.6W
MAR 31	20 41 57.6	-18-51-28.2	20.25211	19.80916	-25.659	5.8	3.5	-39.3	207.7	265.6	318.5	62.4W
APR 4	20 42 29.8	-18-49-33.7	20.19182	19.80968	-26.519	5.8	3.5	-39.2	52.6	265.6	318.5	66.2W
APR 8	20 42 59.2	-18-47-49.9	20.12968	19.81021	-27.257	5.8	3.5	-39.0	257.4	265.5	318.6	70.0W
APR 12	20 43 25.7	-18-46-17.0	20.06599	19.81073	-27.861	5.8	3.5	-38.9	102.2	265.5	318.6	73.9W
APR 16	20 43 49.2	-18-44-55.7	20.00105	19.81125	-28.334	5.8	3.5	-38.8	307.1	265.4	318.7	77.7W
APR 20	20 44 9.5	-18-43-46.3	19.93517	19.81177	-28.679	5.8	3.5	-38.8	151.9	265.4	318.7	81.5W
APR 24	20 44 26.8	-18-42-48.8	19.86864	19.81230	-28.901	5.8	3.5	-38.7	356.8	265.4	318.8	85.3W
APR 28	20 44 40.9	-18-42-3.4	19.80173	19.81282	-29.001	5.8	3.6	-38.6	201.6	265.3	318.8	89.2W
MAY 2	20 44 51.8	-18-41-30.6	19.73474	19.81334	-28.975	5.8	3.6	-38.6	46.5	265.3	318.9	93.0W
MAY 6	20 44 59.4	-18-41-10.3	19.66796	19.81386	-28.811	5.8	3.6	-38.6	251.3	265.3	318.9	96.9W
MAY 10	20 45 3.7	-18-41-2.5	19.60173	19.81438	-28.503	5.8	3.6	-38.5	96.1	265.3	318.9	100.7W
MAY 14	20 45 4.9	-18-41-7.3	19.53637	19.81489	-28.059	5.8	3.6	-38.5	301.0	265.3	319.0	104.6W
MAY 18	20 45 2.7	-18-41-24.5	19.47219	19.81541	-27.486	5.7	3.6	-38.6	145.8	265.3	319.0	108.4W
MAY 22	20 44 57.4	-18-41-53.7	19.40947	19.81593	-26.792	5.7	3.6	-38.6	350.6	265.3	319.1	112.3W
MAY 26	20 44 49.1	-18-42-34.7	19.34849	19.81645	-25.981	5.7	3.6	-38.6	195.4	265.3	319.1	116.2W
MAY 30	20 44 37.6	-18-43-27.6	19.28951	19.81696	-25.051	5.7	3.7	-38.7	40.2	265.3	319.2	120.1W
JUN 3	20 44 23.1	-18-44-31.6	19.23283	19.81748	-23.995	5.7	3.7	-38.7	245.0	265.4	319.2	124.0W
JUN 7	20 44 5.8	-18-45-46.2	19.17874	19.81800	-22.814	5.7	3.7	-38.8	89.8	265.4	319.3	127.9W
JUN 11	20 43 45.7	-18-47-11.3	19.12751	19.81851	-21.518	5.7	3.7	-38.9	294.5	265.5	319.3	131.8W
JUN 15	20 43 22.9	-18-48-46.0	19.07939	19.81903	-20.120	5.7	3.7	-39.0	139.3	265.5	319.3	135.7W
JUN 19	20 42 57.6	-18-50-29.4	19.03461	19.81954	-18.631	5.7	3.7	-39.1	344.0	265.6	319.4	139.6W
JUN 23	20 42 30.1	-18-52-21.0	18.99337	19.82005	-17.059	5.7	3.7	-39.2	188.8	265.6	319.4	143.5W
JUN 27	20 42 0.4	-18-54-20.2	18.95585	19.82057	-15.404	5.7	3.7	-39.3	33.5	265.7	319.5	147.5W
JUL 1	20 41 28.7	-18-56-26.0	18.92226	19.82108	-13.662	5.7	3.7	-39.4	238.2	265.7	319.5	151.4W
JUL 5	20 40 55.2	-18-58-37.6	18.89279	19.82159	-11.841	5.7	3.7	-39.5	82.9	265.8	319.6	155.4W
JUL 9	20 40 20.2	-19-0-54.2	18.86760	19.82210	-9.955	5.7	3.7	-39.7	287.6	265.9	319.6	159.3W
JUL 13	20 39 43.9	-19-3-14.7	18.84682	19.82261	-8.021	5.7	3.7	-39.8	132.2	265.9	319.7	163.3W
JUL 17	20 39 6.4	-19-5-38.1	18.83056	19.82312	-6.052	5.7	3.7	-40.0	336.9	266.0	319.7	167.2W
JUL 21	20 38 28.2	-19-8-3.4	18.81887	19.82363	-4.058	5.7	3.7	-40.1	181.5	266.1	319.7	171.2W
JUL 25	20 37 49.4	-19-10-30.1	18.81182	19.82414	-2.040	5.7	3.7	-40.3	26.1	266.2	319.8	175.2W
JUL 29	20 37 10.2	-19-12-56.7	18.80946	19.82465	-0.002	5.7	3.7	-40.4	230.7	266.3	319.8	179.0W
AUG 2	20 36 30.9	-19-15-22.5	18.81183	19.82516	2.056	5.7	3.7	-40.6	75.3	266.3	319.9	176.8E
AUG 6	20 35 51.7	-19-17-46.7	18.81895	19.82567	4.106	5.7	3.7	-40.8	279.9	266.4	319.9	172.8E
AUG 10	20 35 13.0	-19-20-8.0	18.83078	19.82617	6.134	5.7	3.7	-40.9	124.5	266.5	320.0	168.8E
AUG 14	20 34 35.0	-19-22-25.4	18.84726	19.82668	8.127	5.7	3.7	-41.1	329.0	266.6	320.0	164.8E
AUG 18	20 33 58.0	-19-24-38.4	18.86829	19.82719	10.075	5.7	3.7	-41.2	173.6	266.6	320.1	160.8E
AUG 22	20 33 22.2	-19-26-46.2	18.89377	19.82769	11.980	5.7	3.7	-41.4	18.1	266.7	320.1	156.9E
AUG 26	20 32 47.7	-19-28-47.6	18.92360	19.82820	13.840	5.7	3.7	-41.5	222.6	266.8	320.1	152.9E
AUG 30	20 32 15.0	-19-30-42.3	18.95766	19.82870	15.641	5.7	3.7	-41.6	67.1	266.9	320.2	148.9E
SEP 3	20 31 44.1	-19-32-29.4	18.99580	19.82920	17.368	5.7	3.7	-41.7	271.6	266.9	320.2	144.9E
SEP 7	20 31 15.2	-19-34-8.1	19.03784	19.82971	19.007	5.7	3.7	-41.9	116.1	267.0	320.3	140.9E
SEP 11	20 30 48.8	-19-35-37.7	19.08354	19.83021	20.546	5.7	3.7	-42.0	320.6	267.0	320.3	136.9E
SEP 15	20 30 24.8	-19-36-58.1	19.13268	19.83071	21.981	5.7	3.7	-42.1	165.1	267.1	320.4	132.9E
SEP 19	20 30 3.4	-19-38-8.6	19.18502	19.83121	23.314	5.7	3.7	-42.1	9.5	267.1	320.4	128.9E
SEP 23	20 29 44.8	-19-39-8.7	19.24032	19.83171	24.547	5.7	3.7	-42.2	214.0	267.2	320.4	124.9E
SEP 27	20 29 29.1	-19-39-58.1	19.29835	19.83221	25.669	5.7	3.7	-42.3	58.5	267.2	320.5	120.9E
OCT 1	20 29 16.5	-19-40-36.7	19.35883	19.83271	26.667	5.7	3.6	-42.3	262.9	267.2	320.5	117.0E
OCT 5	20 29 7.0	-19-41-3.7	19.42145	19.83321	27.531	5.7	3.6	-42.4	107.4	267.2	320.6	113.0E
OCT 9	20 29 0.7	-19-41-19.1	19.48592	19.83371	28.255	5.8	3.6	-42.4	311.8	267.3	320.6	109.0E
OCT 13	20 28 57.8	-19-41-23.0	19.55189	19.83421	28.840	5.8	3.6	-42.4	156.3	267.3	320.7	105.0E
OCT 17	20 28 58.2	-19-41-15.1	19.61907	19.83471	29.294	5.8	3.6	-42.4	0.7	267.3	320.7	101.1E
OCT 21	20 29 1.9	-19-40-55.2	19.68714	19.83520	29.622	5.8	3.6	-42.4	205.2	267.2	320.8	97.1E
OCT 25	20 29 9.0	-19-40-23.7	19.75582	19.83570	29.815	5.8	3.6	-42.4	49.6	267.2	320.8	93.2E
OCT 29	20 29 19.4	-19-39-40.3	19.82474	19.83619	29.865	5.8	3.6	-42.3	254.1	267.2	320.8	89.2E
NOV 2	20 29 33.2	-19-38-45.1	19.89370	19.83669	29.769	5.8	3.5	-42.3	98.5	267.2	320.9	85.3E
NOV 6	20 29 50.3	-19-37-38.1	19.96222	19.83718	29.525	5.8	3.5	-42.2	303.0	267.1	320.9	81.3E
NOV 10	20 30 10.7	-19-36-19.9	20.03001	19.83768	29.142	5.8	3.5	-42.1	147.5	267.1	321.0	77.4E
NOV 14	20 30 34.2	-19-34-50.3	20.09677	19.83817	28.631	5.8	3.5	-42.0	351.9	267.0	321.0	73.5E
NOV 18	20 31 0.9	-19-33-9.7	20.16220	19.83866	27.999	5.8	3.5	-41.9	196.4	267.0	321.1	69.6E
NOV 22	20 31 30.5	-19-31-18.5	20.22604	19.83916	27.244	5.8	3.5	-41.8	40.9	266.9	321.1	65.6E
NOV 26	20 32 3.0	-19-29-16.9	20.28798	19.83965	26.360	5.8	3.5	-41.7	245.4	266.8	321.2	61.7E
NOV 30	20 32 38.3	-19-27-5.1										

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 1	20 38	43.1	-19 -4 -21.8	20.71705	19.84405	13.679	5.9	3.4	-40.1	286.3	266.0	321.6	26.8E
JAN 5	20 39	36.5	-19 -1 -0.7	20.74657	19.84454	11.870	5.9	3.4	-39.9	131.0	265.9	321.6	22.9E
JAN 9	20 40	31.0	-18 -57 -34.7	20.77187	19.84502	10.021	5.9	3.4	-39.6	335.6	265.8	321.6	19.1E
JAN 13	20 41	26.5	-18 -54 -4.5	20.79285	19.84551	8.139	5.9	3.4	-39.4	180.2	265.7	321.7	15.2E
JAN 17	20 42	22.6	-18 -50 -31.1	20.80946	19.84599	6.227	5.9	3.4	-39.2	24.9	265.6	321.7	11.4E
JAN 21	20 43	19.3	-18 -46 -54.8	20.82161	19.84648	4.286	5.9	3.4	-39.0	229.5	265.5	321.8	7.5E
JAN 25	20 44	16.4	-18 -43 -16.2	20.82925	19.84696	2.321	5.9	3.4	-38.7	74.2	265.4	321.8	3.7E
JAN 29	20 45	13.7	-18 -39 -36.4	20.83233	19.84744	0.343	5.9	3.4	-38.5	278.9	265.3	321.9	0.6E
FEB 2	20 46	10.9	-18 -35 -56.2	20.83084	19.84793	-1.631	5.9	3.4	-38.3	123.6	265.1	321.9	4.0W
FEB 6	20 47	7.8	-18 -32 -16.1	20.82481	19.84841	-3.584	5.9	3.4	-38.0	328.3	265.0	321.9	7.8W
FEB 10	20 48	4.4	-18 -28 -37.0	20.81431	19.84889	-5.509	5.9	3.4	-37.8	173.0	264.9	322.0	11.6W
FEB 14	20 49	0.3	-18 -24 -59.7	20.79939	19.84937	-7.405	5.9	3.4	-37.6	17.7	264.8	322.0	15.5W
FEB 18	20 49	55.4	-18 -21 -24.9	20.78012	19.84985	-9.271	5.9	3.4	-37.4	222.5	264.7	322.1	19.3W
FEB 22	20 50	49.5	-18 -17 -53.2	20.75659	19.85033	-11.101	5.9	3.4	-37.2	67.2	264.6	322.1	23.1W
FEB 26	20 51	42.5	-18 -14 -25.7	20.72887	19.85081	-12.885	5.9	3.4	-36.9	272.0	264.5	322.2	26.9W
MAR 2	20 52	34.1	-18 -11 -3.0	20.69710	19.85129	-14.607	5.9	3.4	-36.7	116.8	264.4	322.2	30.7W
MAR 6	20 53	24.3	-18 -7 -45.8	20.66145	19.85177	-16.250	5.9	3.4	-36.5	321.6	264.3	322.3	34.5W
MAR 10	20 54	12.7	-18 -4 -35.0	20.62209	19.85225	-17.813	5.9	3.4	-36.3	166.4	264.3	322.3	38.3W
MAR 14	20 54	59.3	-18 -1 -31.5	20.57921	19.85273	-19.296	5.9	3.4	-36.1	11.2	264.2	322.3	42.1W
MAR 18	20 55	43.9	-17 -58 -35.4	20.53300	19.85321	-20.697	5.9	3.4	-36.0	216.0	264.1	322.4	45.9W
MAR 22	20 56	26.4	-17 -55 -47.7	20.48365	19.85368	-22.014	5.9	3.4	-35.8	60.8	264.0	322.4	49.7W
MAR 26	20 57	6.7	-17 -53 -9.2	20.43136	19.85416	-23.239	5.9	3.4	-35.6	265.6	263.9	322.5	53.5W
MAR 30	20 57	44.5	-17 -50 -40.4	20.37636	19.85463	-24.355	5.9	3.5	-35.5	110.5	263.9	322.5	57.3W
APR 3	20 58	19.8	-17 -48 -21.8	20.31893	19.85511	-25.350	5.8	3.5	-35.3	315.3	263.8	322.6	61.1W
APR 7	20 58	52.4	-17 -46 -14.2	20.25933	19.85558	-26.227	5.8	3.5	-35.2	160.1	263.8	322.6	64.9W
APR 11	20 59	22.3	-17 -44 -18.0	20.19784	19.85606	-26.988	5.8	3.5	-35.1	5.0	263.7	322.7	68.7W
APR 15	20 59	49.4	-17 -42 -33.4	20.13473	19.85653	-27.636	5.8	3.5	-35.0	209.8	263.7	322.7	72.5W
APR 19	21 0	13.6	-17 -41 -1.0	20.07024	19.85700	-28.168	5.8	3.5	-34.9	54.7	263.6	322.7	76.3W
APR 23	21 0	34.7	-17 -39 -41.3	20.00467	19.85748	-28.578	5.8	3.5	-34.8	259.5	263.6	322.8	80.2W
APR 27	21 0	52.8	-17 -38 -34.4	19.93831	19.85795	-28.855	5.8	3.5	-34.7	104.4	263.6	322.8	84.0W
MAY 1	21 1	7.8	-17 -37 -40.6	19.87146	19.85842	-28.989	5.8	3.5	-34.6	309.2	263.5	322.9	87.8W
MAY 5	21 1	19.6	-17 -37 -0.3	19.80447	19.85889	-28.988	5.8	3.6	-34.6	154.0	263.5	322.9	91.6W
MAY 9	21 1	28.2	-17 -36 -33.5	19.73763	19.85936	-28.857	5.8	3.6	-34.6	358.9	263.5	323.0	95.5W
MAY 13	21 1	33.6	-17 -36 -19.9	19.67123	19.85983	-28.603	5.8	3.6	-34.5	203.7	263.5	323.0	99.3W
MAY 17	21 1	35.9	-17 -36 -19.7	19.60557	19.86030	-28.225	5.8	3.6	-34.5	48.5	263.5	323.0	103.2W
MAY 21	21 1	34.9	-17 -36 -33.1	19.54092	19.86076	-27.720	5.8	3.6	-34.5	253.4	263.5	323.1	107.0W
MAY 25	21 1	30.8	-17 -36 -59.5	19.47759	19.86123	-27.079	5.8	3.6	-34.6	98.2	263.5	323.1	110.9W
MAY 29	21 1	23.7	-17 -37 -38.9	19.41590	19.86170	-26.301	5.7	3.6	-34.6	303.0	263.5	323.2	114.8W
JUN 2	21 1	13.4	-17 -38 -31.1	19.35617	19.86217	-25.394	5.7	3.6	-34.6	147.8	263.5	323.2	118.6W
JUN 6	21 1	0.2	-17 -39 -35.5	19.29866	19.86263	-24.372	5.7	3.7	-34.7	352.6	263.6	323.3	122.5W
JUN 10	21 0	44.1	-17 -40 -51.5	19.24364	19.86310	-23.242	5.7	3.7	-34.7	197.4	263.6	323.3	126.4W
JUN 14	21 0	25.3	-17 -42 -18.7	19.19135	19.86356	-22.007	5.7	3.7	-34.8	42.1	263.6	323.4	130.3W
JUN 18	21 0	3.8	-17 -43 -56.7	19.14203	19.86403	-20.667	5.7	3.7	-34.9	246.9	263.7	323.4	134.2W
JUN 22	20 59	39.8	-17 -45 -44.5	19.09594	19.86449	-19.217	5.7	3.7	-35.0	91.7	263.7	323.4	138.1W
JUN 26	20 59	13.4	-17 -47 -41.5	19.05332	19.86495	-17.661	5.7	3.7	-35.1	296.4	263.8	323.5	142.1W
JUN 30	20 58	44.8	-17 -49 -47.2	19.01440	19.86542	-16.016	5.7	3.7	-35.2	141.1	263.8	323.5	146.0W
JUL 4	20 58	14.2	-17 -52 -0.3	18.97938	19.86588	-14.295	5.7	3.7	-35.4	345.8	263.9	323.6	149.9W
JUL 8	20 57	41.8	-17 -54 -19.9	18.94840	19.86634	-12.509	5.7	3.7	-35.5	190.5	263.9	323.6	153.9W
JUL 12	20 57	7.9	-17 -56 -45.3	18.92162	19.86680	-10.666	5.7	3.7	-35.6	35.2	264.0	323.7	157.8W
JUL 16	20 56	32.5	-17 -59 -15.5	18.89916	19.86726	-8.766	5.7	3.7	-35.8	239.9	264.1	323.7	161.8W
JUL 20	20 55	55.9	-18 -1 -49.3	18.88115	19.86772	-6.809	5.7	3.7	-35.9	84.5	264.1	323.8	165.8W
JUL 24	20 55	18.5	-18 -4 -25.9	18.86773	19.86818	-4.806	5.7	3.7	-36.1	289.2	264.2	323.8	169.7W
JUL 28	20 54	40.3	-18 -7 -4.4	18.85897	19.86864	-2.774	5.7	3.7	-36.2	133.8	264.3	323.8	173.7W
AUG 1	20 54	1.7	-18 -9 -43.3	18.85491	19.86910	-0.730	5.7	3.7	-36.4	338.4	264.3	323.9	177.6W
AUG 5	20 53	22.9	-18 -12 -21.5	18.85559	19.86955	1.313	5.7	3.7	-36.5	183.0	264.4	323.9	178.2E
AUG 9	20 52	44.2	-18 -14 -58.4	18.86097	19.87001	3.347	5.7	3.7	-36.7	27.6	264.5	324.0	174.3E
AUG 13	20 52	5.9	-18 -17 -32.9	18.87104	19.87047	5.372	5.7	3.7	-36.9	232.2	264.5	324.0	170.3E
AUG 17	20 51	28.1	-18 -20 -3.7	18.88578	19.87092	7.386	5.7	3.7	-37.0	76.8	264.6	324.1	166.3E
AUG 21	20 50	51.1	-18 -22 -30.2	18.90514	19.87138	9.374	5.7	3.7	-37.2	281.3	264.7	324.1	162.3E
AUG 25	20 50	15.2	-18 -24 -51.4	18.92905	19.87183	11.317	5.7	3.7	-37.3	125.9	264.7	324.1	158.3E
AUG 29	20 49	40.7	-18 -27 -6.1	18.95738	19.87229	13.202	5.7	3.7	-37.4	330.4	264.8	324.2	154.3E
SEP 2	20 49	7.7	-18 -29 -13.5	18.98998	19.87274	15.016	5.7	3.7	-37.6	174.9	264.9	324.2	150.3E
SEP 6	20 48	36.6	-18 -31 -13.1	19.02669	19.87320	16.753	5.7	3.7	-37.7	19.4	264.9	324.3	146.3E
SEP 10	20 48	7.3	-18 -33 -4.0	19.06733	19.87365	18.416	5.7	3.7	-37.8	223.9	265.0	324.3	142.3E
SEP 14	20 47	40.3	-18 -34 -45.4	19.11172	19.87410	20.002	5.7	3.7	-37.9	68.4	265.0	324.4	138.3E
SEP 18	20 47	15.7	-18 -36 -17.0	19.15967	19.87455	21.498	5.7	3.7	-38.0	272.9	265.1	324.4	134.3E
SEP 22	20 46	53.6	-18 -37 -38.0	19.21096	19.87500	22.888	5.7	3.7	-38.1	117.3	265.1	324.5	130.3E
SEP 26	20 46	34.2	-18 -38 -47.7	19.26533	19.87545	24.161	5.7	3.7	-38.2	321.8	265.2	324.5	126.3E
SEP 30	20 46	17.7	-18 -39 -45.9	19.32250	19.87591	25.309	5.7	3.6	-38.3	166.3	265.2	324.5	122.3E
OCT 4	20 46	4.1	-18 -40 -32.2	19.38217	19.87635	26.333	5.7	3.6	-38.3	10.7	265.2	324.6	118.3E
OCT 8	20 45	53.6	-18 -41 -6.3	19.44407	19.87680	27.236	5.8	3.6	-38.4	215.2	265.2	324.6	114.3E
OCT 12	20 45	46.3	-18 -41 -27.8	19.50792	19.87725	28.021	5.8	3.6	-38.4	59.6	265.2	324.7	110.4E
OCT 16	20 45	42.2	-18 -41 -36.8	19.57343	19.87770	28.676	5.8	3.6	-38.4	264.1	265.3	324.7	106.4E
OCT 20	20 45	41.3	-18 -41 -33.0	19.64030	19.87815	29.190	5.8	3.6	-38.4	108.5	265.3	324.8	102.4E
OCT 24	20 45	43.8	-18 -41 -16.0	19.70819	19.87860	29.559	5.8	3.6	-38.4	313.0	265.2	324.8	98.4E
OCT 28	20 45	49.6	-18 -40 -46.0	19.77676	19.87904	29.779	5.8	3.6	-38.4	157.4	265.2	324.8	94.5E
NOV 1	20 45	58.8	-18 -40 -3.3	19.84567	19.87949	29.858	5.8	3.6	-38.3	1.9	265.2	324.9	90.5E
NOV 5	20 46	11.2	-18 -39 -7.6	19.91461	19.87993	29.803	5.8	3.5	-38.3	206.3	265.2	324.9	86.6E
NOV 9	20 46	27.0	-18 -37 -59.1	19.98328	19.88038	29.621	5.8	3.5	-38.2	50.8	265.2	325.0	82.6E
NOV 13	20 46	45.9	-18 -36 -38.2	20.05137	19.88082	29.303	5.8	3.5	-38.1	255.3	265.1	325.0	78.7E
NOV 17	20 47	8.0	-18 -35 -5.0	20.11856	19.88127	28.844	5.8	3.5	-38.0	99.7	265.1	325.1	74.7E
NOV 21	20 4												

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	20 55	0.6	-18 -2-37.6	20.74971	19.88655	14.231	5.9	3.4	-36.1	34.0	264.2	325.6	28.0E
JAN 8	20 55	52.7	-17-59 -2.0	20.78055	19.88699	12.458	5.9	3.4	-35.9	238.6	264.1	325.6	24.1E
JAN 12	20 56	46.0	-17-55-21.0	20.80723	19.88742	10.627	5.9	3.4	-35.7	83.3	264.0	325.7	20.2E
JAN 16	20 57	40.4	-17-51-35.2	20.82962	19.88786	8.744	5.9	3.4	-35.5	287.9	263.9	325.7	16.4E
JAN 20	20 58	35.6	-17-47-45.7	20.84760	19.88829	6.821	5.9	3.4	-35.3	132.5	263.8	325.8	12.6E
JAN 24	20 59	31.3	-17-43-53.2	20.86112	19.88873	4.874	5.9	3.4	-35.0	337.2	263.7	325.8	8.7E
JAN 28	21 0	27.4	-17-39-58.2	20.87012	19.88916	2.920	5.9	3.4	-34.8	181.8	263.6	325.9	4.9E
FEB 1	21 1	23.7	-17-36 -1.9	20.87461	19.88960	0.965	5.9	3.4	-34.6	26.5	263.5	325.9	1.2E
FEB 5	21 2	20.1	-17-32 -4.9	20.87459	19.89003	-0.990	5.9	3.4	-34.3	231.2	263.4	325.9	2.9W
FEB 9	21 3	16.2	-17-28 -8.0	20.87005	19.89046	-2.944	5.9	3.4	-34.1	75.9	263.3	326.0	6.6W
FEB 13	21 4	12.1	-17-24-11.8	20.86100	19.89089	-4.889	5.9	3.4	-33.9	280.6	263.2	326.0	10.4W
FEB 17	21 5	7.4	-17-20-17.5	20.84748	19.89132	-6.813	5.9	3.4	-33.7	125.3	263.1	326.1	14.3W
FEB 21	21 6	1.9	-17-16-25.8	20.82956	19.89176	-8.699	5.9	3.4	-33.4	330.1	263.0	326.1	18.1W
FEB 25	21 6	55.6	-17-12-37.4	20.80733	19.89219	-10.533	5.9	3.4	-33.2	174.8	262.9	326.2	21.9W
MAR 1	21 7	48.1	-17 -8-53.3	20.78094	19.89262	-12.310	5.9	3.4	-33.0	19.6	262.8	326.2	25.7W
MAR 5	21 8	39.4	-17 -5-14.4	20.75050	19.89304	-14.031	5.9	3.4	-32.8	224.4	262.8	326.3	29.5W
MAR 9	21 9	29.2	-17 -1-41.1	20.71616	19.89347	-15.696	5.9	3.4	-32.6	69.1	262.7	326.3	33.3W
MAR 13	21 10	17.5	-16-58-14.3	20.67804	19.89390	-17.297	5.9	3.4	-32.4	273.9	262.6	326.3	37.0W
MAR 17	21 11	4.0	-16-54-55.0	20.63630	19.89433	-18.824	5.9	3.4	-32.2	118.7	262.5	326.4	40.8W
MAR 21	21 11	48.6	-16-51-43.8	20.59114	19.89476	-20.260	5.9	3.4	-32.0	323.5	262.4	326.4	44.6W
MAR 25	21 12	31.2	-16-48-41.3	20.54277	19.89518	-21.595	5.9	3.4	-31.8	168.3	262.4	326.5	48.4W
MAR 29	21 13	11.6	-16-45-48.6	20.49144	19.89561	-22.827	5.9	3.4	-31.7	13.2	262.3	326.5	52.2W
APR 2	21 13	49.6	-16-43 -6.1	20.43738	19.89604	-23.962	5.9	3.4	-31.5	218.0	262.2	326.6	56.0W
APR 6	21 14	25.2	-16-40-34.2	20.38081	19.89646	-24.997	5.9	3.5	-31.4	62.8	262.2	326.6	59.8W
APR 10	21 14	58.3	-16-38-13.7	20.32197	19.89689	-25.929	5.9	3.5	-31.2	267.6	262.1	326.6	63.6W
APR 14	21 15	28.7	-16-36 -5.2	20.26110	19.89731	-26.748	5.8	3.5	-31.1	112.5	262.1	326.7	67.4W
APR 18	21 15	56.3	-16-34 -9.2	20.19848	19.89774	-27.443	5.8	3.5	-31.0	317.3	262.1	326.7	71.2W
APR 22	21 16	21.1	-16-32-25.9	20.13441	19.89816	-28.003	5.8	3.5	-30.9	162.2	262.0	326.8	75.0W
APR 26	21 16	42.9	-16-30-56.2	20.06920	19.89858	-28.434	5.8	3.5	-30.8	7.0	262.0	326.8	78.8W
APR 30	21 17	1.7	-16-29-40.0	20.00313	19.89901	-28.743	5.8	3.5	-30.7	211.9	262.0	326.9	82.6W
MAY 4	21 17	17.5	-16-28-37.6	19.93649	19.89943	-28.931	5.8	3.5	-30.7	56.7	261.9	326.9	86.4W
MAY 8	21 17	30.3	-16-27-49.2	19.86955	19.89985	-28.995	5.8	3.5	-30.6	261.5	261.9	327.0	90.3W
MAY 12	21 17	39.9	-16-27-15.2	19.80262	19.90027	-28.930	5.8	3.6	-30.6	106.4	261.9	327.0	94.1W
MAY 16	21 17	46.3	-16-26-55.5	19.73599	19.90069	-28.727	5.8	3.6	-30.6	311.2	261.9	327.0	97.9W
MAY 20	21 17	49.6	-16-26-50.0	19.67000	19.90111	-28.380	5.8	3.6	-30.5	156.0	261.9	327.1	101.8W
MAY 24	21 17	49.8	-16-26-59.0	19.60496	19.90153	-27.901	5.8	3.6	-30.5	0.9	261.9	327.1	105.6W
MAY 28	21 17	46.8	-16-27-22.1	19.54118	19.90195	-27.298	5.8	3.6	-30.5	205.7	261.9	327.2	109.5W
JUN 1	21 17	40.8	-16-27-58.8	19.47893	19.90237	-26.577	5.8	3.6	-30.6	50.5	261.9	327.2	113.3W
JUN 5	21 17	31.8	-16-28-49.1	19.41848	19.90278	-25.737	5.8	3.6	-30.6	255.3	261.9	327.3	117.2W
JUN 9	21 17	19.8	-16-29-52.8	19.36010	19.90320	-24.776	5.7	3.6	-30.7	100.1	261.9	327.3	121.1W
JUN 13	21 17	4.9	-16-31 -9.1	19.30409	19.90362	-23.689	5.7	3.7	-30.7	304.9	262.0	327.3	125.0W
JUN 17	21 16	47.3	-16-32-37.5	19.25075	19.90404	-22.476	5.7	3.7	-30.8	149.7	262.0	327.4	128.9W
JUN 21	21 16	27.0	-16-34-17.9	19.20033	19.90445	-21.155	5.7	3.7	-30.9	354.4	262.0	327.4	132.8W
JUN 25	21 16	4.2	-16-36 -8.9	19.15307	19.90487	-19.737	5.7	3.7	-31.0	199.2	262.1	327.5	136.7W
JUN 29	21 15	39.0	-16-38-10.0	19.10920	19.90528	-18.229	5.7	3.7	-31.1	43.9	262.1	327.5	140.6W
JUL 3	21 15	11.6	-16-40-20.5	19.06891	19.90570	-16.637	5.7	3.7	-31.2	248.7	262.2	327.6	144.5W
JUL 7	21 14	42.1	-16-42-39.6	19.03239	19.90611	-14.959	5.7	3.7	-31.3	93.4	262.2	327.6	148.5W
JUL 11	21 14	10.8	-16-45 -6.0	18.99985	19.90652	-13.195	5.7	3.7	-31.4	298.1	262.3	327.7	152.4W
JUL 15	21 13	37.8	-16-47-39.0	18.97148	19.90694	-11.354	5.7	3.7	-31.6	142.8	262.3	327.7	156.4W
JUL 19	21 13	3.3	-16-50-17.8	18.94743	19.90735	-9.453	5.7	3.7	-31.7	347.5	262.4	327.7	160.3W
JUL 23	21 12	27.6	-16-53 -0.8	18.92783	19.90776	-7.510	5.7	3.7	-31.9	192.1	262.4	327.8	164.3W
JUL 27	21 11	51.0	-16-55-47.1	18.91276	19.90817	-5.533	5.7	3.7	-32.0	36.8	262.5	327.8	168.2W
JUL 31	21 11	13.6	-16-58-35.8	18.90228	19.90858	-3.529	5.7	3.7	-32.2	241.4	262.5	327.9	172.2W
AUG 4	21 10	35.6	-17 -1-25.7	18.89646	19.90899	-1.500	5.7	3.7	-32.3	86.1	262.6	327.9	176.2W
AUG 8	21 9	57.3	-17 -4-15.5	18.89536	19.90940	0.552	5.7	3.7	-32.5	290.7	262.7	328.0	179.3E
AUG 12	21 9	19.1	-17 -7 -4.3	18.89901	19.90981	2.613	5.7	3.7	-32.6	135.3	262.7	328.0	175.7E
AUG 16	21 8	41.0	-17 -9-51.1	18.90742	19.91022	4.664	5.7	3.7	-32.8	339.9	262.8	328.0	171.8E
AUG 20	21 8	3.5	-17-12-34.3	18.92054	19.91063	6.687	5.7	3.7	-33.0	184.4	262.9	328.1	167.8E
AUG 24	21 7	26.7	-17-15-13.2	18.93828	19.91103	8.674	5.7	3.7	-33.1	29.0	262.9	328.1	163.8E
AUG 28	21 6	50.9	-17-17-46.8	18.96057	19.91144	10.618	5.7	3.7	-33.3	233.5	263.0	328.2	159.8E
SEP 1	21 6	16.2	-17-20-14.1	18.98731	19.91185	12.518	5.7	3.7	-33.4	78.1	263.0	328.2	155.7E
SEP 5	21 5	43.1	-17-22-33.9	19.01837	19.91225	14.371	5.7	3.7	-33.5	282.6	263.1	328.3	151.7E
SEP 9	21 5	11.6	-17-24-45.7	19.05365	19.91266	16.162	5.7	3.7	-33.7	127.1	263.2	328.3	147.7E
SEP 13	21 4	42.0	-17-26-48.6	19.09298	19.91306	17.872	5.7	3.7	-33.8	331.6	263.2	328.4	143.7E
SEP 17	21 4	14.5	-17-28-41.4	19.13615	19.91347	19.487	5.7	3.7	-33.9	176.1	263.3	328.4	139.7E
SEP 21	21 3	49.3	-17-30-23.7	19.18294	19.91387	21.002	5.7	3.7	-34.0	20.6	263.3	328.4	135.7E
SEP 25	21 3	26.6	-17-31-55.1	19.23310	19.91427	22.414	5.7	3.7	-34.1	225.1	263.3	328.5	131.7E
SEP 29	21 3	6.5	-17-33-14.6	19.28641	19.91468	23.724	5.7	3.7	-34.2	69.5	263.4	328.5	127.7E
OCT 3	21 2	49.1	-17-34-21.7	19.34263	19.91508	24.931	5.7	3.6	-34.2	274.0	263.4	328.6	123.7E
OCT 7	21 2	34.7	-17-35-16.4	19.40151	19.91548	26.022	5.8	3.6	-34.3	118.5	263.4	328.6	119.7E
OCT 11	21 2	23.2	-17-35-58.0	19.46276	19.91588	26.982	5.8	3.6	-34.3	322.9	263.4	328.7	115.7E
OCT 15	21 2	14.8	-17-36-26.0	19.52607	19.91628	27.803	5.8	3.6	-34.4	167.4	263.5	328.7	111.7E
OCT 19	21 2	9.6	-17-36-40.4	19.59111	19.91668	28.485	5.8	3.6	-34.4	11.8	263.5	328.7	107.7E
OCT 23	21 2	7.7	-17-36-41.2	19.65757	19.91708	29.030	5.8	3.6	-34.4	216.3	263.5	328.8	103.7E
OCT 27	21 2	9.0	-17-36-27.9	19.72514	19.91748	29.444	5.8	3.6	-34.4	60.7	263.5	328.8	99.8E
OCT 31	21 2	13.5	-17-36 -0.5	19.79352	19.91788	29.729	5.8	3.6	-34.4	265.2	263.4	328.9	95.8E
NOV 4	21 2	21.4	-17-35-19.5	19.86239	19.91828	29.875	5.8	3.5	-34.4	109.6	263.4	328.9	91.8E
NOV 8	21 2	32.5	-17-34-24.5	19.93143	19.91868	29.873	5.8	3.5	-34.3	314.1	263.4	329.0	87.8E
NOV 12	21 2	46.9	-17-33-15.4	20.00030	19.91907	29.723	5.8	3.5	-34.2	158.5	263.4	329.0	83.9E
NOV 16	21 3	4.6	-17-31-52.9	20.06865	19.91947	29.427	5.8	3.5	-34.2	3.0	263.4	329.1	79.9E
NOV 20	21 3	25.4	-17-30-17.1	20.13616	19.91987	28.995	5.8	3.5	-34.1	207.4	263.3	329.1	76.0E
NOV 24	21 3	49.2	-17-28-										

Date (0 DT)	RA [Mean] (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	21 10 12.2	-16-59-51.6	20.74174	19.92419	16.484	5.9	3.4	-32.4	297.1	262.6	329.6	33.0E
JAN 7	21 11 1.8	-16-56-9.3	20.77786	19.92459	14.775	5.9	3.4	-32.2	141.7	262.5	329.6	29.1E
JAN 11	21 11 52.8	-16-52-20.6	20.80996	19.92498	12.999	5.9	3.4	-32.0	346.3	262.4	329.7	25.3E
JAN 15	21 12 45.0	-16-48-26.1	20.83789	19.92537	11.172	5.9	3.4	-31.8	190.9	262.4	329.7	21.4E
JAN 19	21 13 38.3	-16-44-26.4	20.86156	19.92575	9.310	5.9	3.4	-31.6	35.5	262.3	329.8	17.6E
JAN 23	21 14 32.4	-16-40-22.7	20.88089	19.92614	7.419	5.9	3.4	-31.3	240.1	262.2	329.8	13.7E
JAN 27	21 15 27.0	-16-36-15.8	20.89581	19.92653	5.497	5.9	3.4	-31.1	84.8	262.1	329.8	9.9E
JAN 31	21 16 22.2	-16-32-6.0	20.90627	19.92692	3.547	5.9	3.4	-30.9	289.4	262.0	329.9	6.1E
FEB 4	21 17 17.7	-16-27-54.4	20.91219	19.92731	1.578	5.9	3.4	-30.7	134.1	261.9	329.9	2.3E
FEB 8	21 18 13.2	-16-23-42.2	20.91356	19.92769	-0.395	5.9	3.4	-30.4	338.8	261.8	330.0	1.7W
FEB 12	21 19 8.6	-16-19-29.9	20.91038	19.92808	-2.359	5.9	3.4	-30.2	183.5	261.7	330.0	5.5W
FEB 16	21 20 3.7	-16-15-18.2	20.90269	19.92847	-4.297	5.9	3.4	-30.0	28.2	261.7	330.1	9.3W
FEB 20	21 20 58.4	-16-11-8.5	20.89056	19.92885	-6.204	5.9	3.4	-29.8	232.9	261.6	330.1	13.1W
FEB 24	21 21 52.3	-16-7-1.5	20.87405	19.92924	-8.084	5.9	3.4	-29.5	77.6	261.5	330.1	16.9W
FEB 28	21 22 45.4	-16-2-57.7	20.85324	19.92962	-9.933	5.9	3.4	-29.3	282.3	261.4	330.2	20.7W
MAR 3	21 23 37.6	-15-58-58.1	20.82819	19.93001	-11.742	5.9	3.4	-29.1	127.1	261.3	330.2	24.5W
MAR 7	21 24 28.5	-15-55-3.9	20.79903	19.93039	-13.498	5.9	3.4	-28.9	331.9	261.3	330.3	28.3W
MAR 11	21 25 18.1	-15-51-15.6	20.76589	19.93077	-15.186	5.9	3.4	-28.7	176.6	261.2	330.3	32.0W
MAR 15	21 26 6.2	-15-47-34.0	20.72893	19.93116	-16.794	5.9	3.4	-28.5	21.4	261.1	330.4	35.8W
MAR 19	21 26 52.5	-15-44-0.3	20.68836	19.93154	-18.321	5.9	3.4	-28.3	226.2	261.0	330.4	39.6W
MAR 23	21 27 37.1	-15-40-35.1	20.64435	19.93192	-19.770	5.9	3.4	-28.1	71.0	261.0	330.4	43.4W
MAR 27	21 28 19.7	-15-37-18.7	20.59708	19.93230	-21.139	5.9	3.4	-27.9	275.8	260.9	330.5	47.2W
MAR 31	21 29 0.2	-15-34-12.3	20.54675	19.93268	-22.421	5.9	3.4	-27.7	120.6	260.9	330.5	51.0W
APR 4	21 29 38.4	-15-31-16.6	20.49357	19.93306	-23.604	5.9	3.4	-27.6	325.5	260.8	330.6	54.8W
APR 8	21 30 14.3	-15-28-32.0	20.43778	19.93344	-24.676	5.9	3.4	-27.4	170.3	260.7	330.6	58.5W
APR 12	21 30 47.7	-15-25-59.2	20.37965	19.93382	-25.628	5.9	3.5	-27.3	15.1	260.7	330.7	62.3W
APR 16	21 31 18.5	-15-23-39.2	20.31946	19.93420	-26.463	5.9	3.5	-27.2	219.9	260.7	330.7	66.1W
APR 20	21 31 46.7	-15-21-32.0	20.25747	19.93458	-27.186	5.8	3.5	-27.1	64.8	260.6	330.8	69.9W
APR 24	21 32 12.0	-15-19-38.1	20.19394	19.93496	-27.798	5.8	3.5	-27.0	269.6	260.6	330.8	73.7W
APR 28	21 32 34.6	-15-17-58.2	20.12913	19.93534	-28.292	5.8	3.5	-26.9	114.5	260.5	330.8	77.5W
MAY 2	21 32 54.1	-15-16-32.6	20.06332	19.93571	-28.661	5.8	3.5	-26.8	319.3	260.5	330.9	81.3W
MAY 6	21 33 10.7	-15-15-21.4	19.99681	19.93609	-28.894	5.8	3.5	-26.7	164.2	260.5	330.9	85.1W
MAY 10	21 33 24.3	-15-14-25.0	19.92992	19.93646	-28.986	5.8	3.5	-26.6	9.0	260.5	331.0	88.9W
MAY 14	21 33 34.8	-15-13-43.9	19.86298	19.93684	-28.946	5.8	3.5	-26.6	213.8	260.5	331.0	92.7W
MAY 18	21 33 42.2	-15-13-17.6	19.79628	19.93722	-28.782	5.8	3.6	-26.6	58.7	260.5	331.1	96.6W
MAY 22	21 33 46.6	-15-13-6.3	19.73009	19.93759	-28.496	5.8	3.6	-26.6	263.5	260.5	331.1	100.4W
MAY 26	21 33 47.8	-15-13-10.2	19.66471	19.93796	-28.085	5.8	3.6	-26.6	108.3	260.5	331.1	104.2W
MAY 30	21 33 46.0	-15-13-29.0	19.60043	19.93834	-27.544	5.8	3.6	-26.6	313.1	260.5	331.2	108.1W
JUN 3	21 33 41.1	-15-14-2.4	19.53755	19.93871	-26.866	5.8	3.6	-26.6	158.0	260.5	331.2	111.9W
JUN 7	21 33 33.2	-15-14-50.4	19.47640	19.93908	-26.052	5.8	3.6	-26.6	2.8	260.5	331.3	115.8W
JUN 11	21 33 22.4	-15-15-52.6	19.41727	19.93946	-25.116	5.8	3.6	-26.7	207.6	260.5	331.3	119.7W
JUN 15	21 33 8.7	-15-17-8.3	19.36044	19.93983	-24.068	5.7	3.6	-26.7	52.4	260.5	331.4	123.5W
JUN 19	21 32 52.2	-15-18-36.9	19.30615	19.94020	-22.913	5.7	3.7	-26.8	257.1	260.5	331.4	127.4W
JUN 23	21 32 33.1	-15-20-18.1	19.25465	19.94057	-21.652	5.7	3.7	-26.9	101.9	260.6	331.5	131.3W
JUN 27	21 32 11.5	-15-22-11.2	19.20619	19.94094	-20.283	5.7	3.7	-27.0	306.7	260.6	331.5	135.2W
JUL 1	21 31 47.4	-15-24-15.2	19.16101	19.94131	-18.805	5.7	3.7	-27.1	151.4	260.6	331.5	139.2W
JUL 5	21 31 21.1	-15-26-29.5	19.11937	19.94168	-17.224	5.7	3.7	-27.2	356.2	260.7	331.6	143.1W
JUL 9	21 30 52.7	-15-28-53.4	19.08149	19.94205	-15.557	5.7	3.7	-27.3	200.9	260.7	331.6	147.0W
JUL 13	21 30 22.4	-15-31-25.4	19.04754	19.94242	-13.821	5.7	3.7	-27.4	45.6	260.8	331.7	151.0W
JUL 17	21 29 50.4	-15-34-4.6	19.01768	19.94279	-12.020	5.7	3.7	-27.6	250.3	260.8	331.7	154.9W
JUL 21	21 29 16.9	-15-36-50.4	18.99204	19.94315	-10.160	5.7	3.7	-27.7	95.0	260.9	331.8	158.9W
JUL 25	21 28 42.1	-15-39-41.3	18.97078	19.94352	-8.241	5.7	3.7	-27.8	299.7	260.9	331.8	162.8W
JUL 29	21 28 6.2	-15-42-36.1	18.95401	19.94389	-6.267	5.7	3.7	-28.0	144.3	261.0	331.8	166.8W
AUG 2	21 27 29.5	-15-45-34.1	18.94185	19.94426	-4.249	5.7	3.7	-28.1	349.0	261.0	331.9	170.8W
AUG 6	21 26 52.1	-15-48-33.9	18.93439	19.94462	-2.209	5.7	3.7	-28.3	193.6	261.1	331.9	174.7W
AUG 10	21 26 14.4	-15-51-34.0	18.93164	19.94499	-0.162	5.7	3.7	-28.5	38.2	261.1	332.0	178.6W
AUG 14	21 25 36.6	-15-54-33.4	18.93363	19.94535	1.884	5.7	3.7	-28.6	242.8	261.2	332.0	177.1E
AUG 18	21 24 58.9	-15-57-31.1	18.94034	19.94572	3.923	5.7	3.7	-28.8	87.4	261.3	332.1	173.2E
AUG 22	21 24 21.6	-16-0-25.8	18.95174	19.94608	5.952	5.7	3.7	-28.9	292.0	261.3	332.1	169.2E
AUG 26	21 23 45.0	-16-3-16.3	18.96782	19.94644	7.967	5.7	3.7	-29.1	136.6	261.4	332.1	165.2E
AUG 30	21 23 9.2	-16-6-1.7	18.98853	19.94681	9.953	5.7	3.7	-29.2	341.1	261.4	332.2	161.2E
SEP 3	21 22 34.5	-16-8-40.9	19.01376	19.94717	11.888	5.7	3.7	-29.4	185.7	261.5	332.2	157.2E
SEP 7	21 22 1.2	-16-11-12.4	19.04340	19.94753	13.758	5.7	3.7	-29.5	30.2	261.5	332.3	153.1E
SEP 11	21 21 29.6	-16-13-35.7	19.07727	19.94790	15.557	5.7	3.7	-29.6	234.7	261.6	332.3	149.1E
SEP 15	21 20 59.6	-16-15-49.8	19.11521	19.94826	17.281	5.7	3.7	-29.8	79.2	261.6	332.4	145.1E
SEP 19	21 20 31.7	-16-17-53.8	19.15705	19.94862	18.930	5.7	3.7	-29.9	283.7	261.7	332.4	141.1E
SEP 23	21 20 6.0	-16-19-46.8	19.20261	19.94898	20.497	5.7	3.7	-30.0	128.2	261.7	332.5	137.1E
SEP 27	21 19 42.6	-16-21-28.4	19.25168	19.94934	21.970	5.7	3.7	-30.1	332.7	261.7	332.5	133.1E
OCT 1	21 19 21.8	-16-22-57.7	19.30403	19.94970	23.330	5.7	3.7	-30.2	177.2	261.8	332.5	129.0E
OCT 5	21 19 3.7	-16-24-13.9	19.35937	19.95006	24.567	5.8	3.6	-30.2	21.6	261.8	332.6	125.0E
OCT 9	21 18 48.4	-16-25-16.8	19.41744	19.95042	25.680	5.8	3.6	-30.3	226.1	261.8	332.6	121.0E
OCT 13	21 18 36.0	-16-26-6.1	19.47793	19.95078	26.670	5.8	3.6	-30.4	70.6	261.8	332.7	117.0E
OCT 17	21 18 26.7	-16-26-41.0	19.54057	19.95113	27.539	5.8	3.6	-30.4	275.0	261.8	332.7	113.0E
OCT 21	21 18 20.5	-16-27-1.5	19.60507	19.95149	28.285	5.8	3.6	-30.4	119.5	261.9	332.8	109.0E
OCT 25	21 18 17.4	-16-27-7.6	19.67115	19.95185	28.897	5.8	3.6	-30.4	323.9	261.9	332.8	105.0E
OCT 29	21 18 17.5	-16-26-58.6	19.73847	19.95220	29.363	5.8	3.6	-30.4	168.4	261.9	332.8	101.0E
NOV 2	21 18 20.9	-16-26-34.6	19.80670	19.95256	29.679	5.8	3.6	-30.4	12.8	261.9	332.9	97.0E
NOV 6	21 18 27.6	-16-25-55.8	19.87549	19.95291	29.849	5.8	3.5	-30.4	217.3	261.8	332.9	93.1E
NOV 10	21 18 37.5	-16-25-2.3	19.94451	19.95327	29.879	5.8	3.5	-30.3	61.7	261.8	333.0	89.1E
NOV 14	21 18 50.6	-16-23-53.7	20.01344	19.95362	29.778	5.8	3.5	-30.3	266.2	261.8	333.0	85.1E
NOV 18	21 19 7.0	-16-22-30.8	20.08199	19.95398	29.545	5.8	3.5	-30.2	110.6	261.8	333.1	81.2E
NOV 22	21 19 26.4	-16-20-53.7	20.14985	19.95433	29.175	5.8	3.5	-30.1	315.1	261.7	333.1	77.2E
NOV 26	21 19 48.9	-16-19-2.3	20.21668	19.95469	28.659	5.8	3.5	-30.0	159.5	261.7	333.1	73.3E
NOV 30	21 20 14.4	-16-16-5										

2001 URANUS

Geocentric Planetary Ephemeris

2001 URANUS

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	21 25 12.0	-15-53	-1.0	20.72328	19.95784	18.583	5.9	3.4	-28.7	200.1	261.2	333.5	38.0E
JAN 5	21 25 58.9	-15-49-15.8		20.76435	19.95819	16.966	5.9	3.4	-28.5	44.7	261.1	333.6	34.1E
JAN 9	21 26 47.3	-15-45-22.7		20.80162	19.95854	15.287	5.9	3.4	-28.3	249.2	261.1	333.6	30.3E
JAN 13	21 27 37.1	-15-41-22.7		20.83495	19.95889	13.551	5.9	3.4	-28.1	93.8	261.0	333.7	26.4E
JAN 17	21 28 28.2	-15-37-16.6		20.86419	19.95924	11.755	5.9	3.4	-27.9	298.4	260.9	333.7	22.6E
JAN 21	21 29 20.4	-15-33 -4.7		20.88922	19.95958	9.902	5.9	3.4	-27.7	143.0	260.8	333.8	18.7E
JAN 25	21 30 13.4	-15-28-48.2		20.90991	19.95993	8.002	5.9	3.4	-27.4	347.7	260.7	333.8	14.9E
JAN 29	21 31 7.2	-15-24-28.2		20.92618	19.96028	6.071	5.9	3.4	-27.2	192.3	260.7	333.8	11.0E
FEB 2	21 32 1.4	-15-20 -5.2		20.93796	19.96062	4.123	5.9	3.4	-27.0	36.9	260.6	333.9	7.2E
FEB 6	21 32 56.0	-15-15-40.1		20.94523	19.96097	2.171	5.9	3.4	-26.8	241.6	260.5	333.9	3.4E
FEB 10	21 33 50.7	-15-11-14.2		20.94799	19.96131	0.222	5.9	3.4	-26.5	86.3	260.4	334.0	0.8W
FEB 14	21 34 45.3	-15 -6-48.2		20.94626	19.96166	-1.729	5.9	3.4	-26.3	291.0	260.4	334.0	4.3W
FEB 18	21 35 39.7	-15 -2-22.6		20.94001	19.96200	-3.677	5.9	3.4	-26.1	135.7	260.3	334.1	8.1W
FEB 22	21 36 33.8	-14-57-58.7		20.92928	19.96235	-5.609	5.9	3.4	-25.9	340.4	260.2	334.1	11.9W
FEB 26	21 37 27.2	-14-53-37.5		20.91412	19.96269	-7.514	5.9	3.4	-25.6	185.1	260.1	334.1	15.7W
MAR 2	21 38 19.8	-14-49-19.7		20.89461	19.96303	-9.375	5.9	3.4	-25.4	29.8	260.1	334.2	19.5W
MAR 6	21 39 11.5	-14-45 -6.1		20.87085	19.96338	-11.181	5.9	3.4	-25.2	234.6	260.0	334.2	23.3W
MAR 10	21 40 2.1	-14-40-58.0		20.84300	19.96372	-12.929	5.9	3.4	-25.0	79.3	259.9	334.3	27.1W
MAR 14	21 40 51.3	-14-36-56.0		20.81116	19.96406	-14.624	5.9	3.4	-24.8	284.1	259.9	334.3	30.8W
MAR 18	21 41 39.2	-14-33 -0.8		20.77548	19.96440	-16.262	5.9	3.4	-24.6	128.9	259.8	334.4	34.6W
MAR 22	21 42 25.5	-14-29-13.4		20.73608	19.96474	-17.831	5.9	3.4	-24.4	333.7	259.7	334.4	38.4W
MAR 26	21 43 10.0	-14-25-34.8		20.69316	19.96508	-19.320	5.9	3.4	-24.2	178.5	259.7	334.5	42.2W
MAR 30	21 43 52.6	-14-22 -5.5		20.64690	19.96543	-20.715	5.9	3.4	-24.0	23.3	259.6	334.5	46.0W
APR 3	21 44 33.2	-14-18-46.3		20.59753	19.96577	-22.009	5.9	3.4	-23.8	228.1	259.6	334.5	49.7W
APR 7	21 45 11.7	-14-15-38.3		20.54529	19.96610	-23.201	5.9	3.4	-23.7	72.9	259.5	334.6	53.5W
APR 11	21 45 47.8	-14-12-41.8		20.49041	19.96644	-24.298	5.9	3.4	-23.5	277.7	259.5	334.6	57.3W
APR 15	21 46 21.6	-14 -9-57.3		20.43310	19.96678	-25.298	5.9	3.4	-23.4	122.5	259.4	334.7	61.0W
APR 19	21 46 52.8	-14 -7-25.8		20.37361	19.96712	-26.190	5.9	3.5	-23.2	327.4	259.4	334.7	64.8W
APR 23	21 47 21.4	-14 -5 -7.9		20.31218	19.96746	-26.966	5.9	3.5	-23.1	172.2	259.3	334.8	68.6W
APR 27	21 47 47.4	-14 -3 -3.6		20.24911	19.96780	-27.615	5.9	3.5	-23.0	17.0	259.3	334.8	72.4W
MAY 1	21 48 10.5	-14 -1-13.8		20.18469	19.96813	-28.132	5.8	3.5	-22.9	221.9	259.3	334.8	76.2W
MAY 5	21 48 30.8	-13-59-39.1		20.11923	19.96847	-28.523	5.8	3.5	-22.8	66.7	259.3	334.9	80.0W
MAY 9	21 48 48.1	-13-58-19.3		20.05300	19.96881	-28.795	5.8	3.5	-22.8	271.6	259.2	334.9	83.8W
MAY 13	21 49 2.5	-13-57-14.7		19.98628	19.96914	-28.948	5.8	3.5	-22.7	116.4	259.2	335.0	87.6W
MAY 17	21 49 14.0	-13-56-25.9		19.91934	19.96948	-28.975	5.8	3.5	-22.7	321.2	259.2	335.0	91.4W
MAY 21	21 49 22.3	-13-55-52.8		19.85250	19.96981	-28.870	5.8	3.6	-22.6	166.1	259.2	335.1	95.2W
MAY 25	21 49 27.6	-13-55-35.3		19.78606	19.97015	-28.625	5.8	3.6	-22.6	10.9	259.2	335.1	99.0W
MAY 29	21 49 29.9	-13-55-33.7		19.72035	19.97048	-28.240	5.8	3.6	-22.6	215.7	259.2	335.1	102.9W
JUN 2	21 49 29.0	-13-55-48.0		19.65568	19.97082	-27.726	5.8	3.6	-22.6	60.6	259.2	335.2	106.7W
JUN 6	21 49 25.2	-13-56-17.5		19.59234	19.97115	-27.093	5.8	3.6	-22.6	265.4	259.2	335.2	110.5W
JUN 10	21 49 18.5	-13-57 -2.2		19.53059	19.97148	-26.342	5.8	3.6	-22.6	110.2	259.2	335.3	114.4W
JUN 14	21 49 8.8	-13-58 -1.9		19.47072	19.97181	-25.471	5.8	3.6	-22.7	315.0	259.2	335.3	118.3W
JUN 18	21 48 56.3	-13-59-16.0		19.41300	19.97215	-24.475	5.8	3.6	-22.7	159.8	259.2	335.4	122.1W
JUN 22	21 48 41.0	-14 -0-43.8		19.35773	19.97248	-23.354	5.8	3.6	-22.8	4.6	259.3	335.4	126.0W
JUN 26	21 48 23.0	-14 -2-25.2		19.30519	19.97281	-22.111	5.7	3.7	-22.9	209.4	259.3	335.5	129.9W
JUN 30	21 48 2.4	-14 -4-19.4		19.25564	19.97314	-20.763	5.7	3.7	-23.0	54.1	259.3	335.5	133.8W
JUL 4	21 47 39.5	-14 -6-25.2		19.20932	19.97347	-19.323	5.7	3.7	-23.1	258.9	259.3	335.5	137.7W
JUL 8	21 47 14.3	-14 -8-42.1		19.16643	19.97380	-17.794	5.7	3.7	-23.2	103.6	259.4	335.6	141.7W
JUL 12	21 46 47.0	-14 11 9.2		19.12717	19.97413	-16.177	5.7	3.7	-23.3	308.4	259.4	335.6	145.6W
JUL 16	21 46 17.7	-14 13-45.5		19.09175	19.97446	-14.473	5.7	3.7	-23.4	153.1	259.5	335.7	149.5W
JUL 20	21 45 46.6	-14-16-29.9		19.06036	19.97479	-12.685	5.7	3.7	-23.5	357.8	259.5	335.7	153.5W
JUL 24	21 45 14.0	-14 19-21.5		19.03319	19.97511	-10.822	5.7	3.7	-23.7	202.5	259.5	335.8	157.4W
JUL 28	21 44 40.0	-14 22 19.2		19.01039	19.97544	-8.906	5.7	3.7	-23.8	47.2	259.6	335.8	161.4W
AUG 1	21 44 4.9	-14-25-21.3		18.99207	19.97577	-6.952	5.7	3.7	-24.0	251.8	259.6	335.8	165.4W
AUG 5	21 43 28.8	-14-28-27.1		18.97829	19.97609	-4.964	5.7	3.7	-24.1	96.5	259.7	335.9	169.3W
AUG 9	21 42 52.1	-14-31-35.3		18.96915	19.97642	-2.947	5.7	3.7	-24.3	301.1	259.7	335.9	173.3W
AUG 13	21 42 14.9	-14-34-44.5		18.96469	19.97675	-0.904	5.7	3.7	-24.4	145.7	259.8	336.0	177.2W
AUG 17	21 41 37.6	-14-37-53.5		18.96498	19.97707	1.158	5.7	3.7	-24.6	350.4	259.8	336.0	178.4E
AUG 21	21 41 0.3	-14-41 -1.4		18.97004	19.97740	3.226	5.7	3.7	-24.7	195.0	259.9	336.1	174.6E
AUG 25	21 40 23.2	-14-44 -6.5		18.97987	19.97772	5.276	5.7	3.7	-24.9	39.5	259.9	336.1	170.6E
AUG 29	21 39 46.8	-14-47 -7.6		18.99439	19.97805	7.294	5.7	3.7	-25.1	244.1	260.0	336.1	166.6E
SEP 2	21 39 11.1	-14-50 -3.7		19.01353	19.97837	9.276	5.7	3.7	-25.2	88.7	260.0	336.2	162.6E
SEP 6	21 38 36.4	-14-52-53.7		19.03721	19.97869	11.216	5.7	3.7	-25.4	293.2	260.1	336.2	158.5E
SEP 10	21 38 3.0	-14-55-36.2		19.06532	19.97902	13.112	5.7	3.7	-25.5	137.8	260.1	336.3	154.5E
SEP 14	21 37 31.1	-14-58-10.4		19.09775	19.97934	14.955	5.7	3.7	-25.6	342.3	260.2	336.3	150.5E
SEP 18	21 37 0.9	-15 0-35.5		19.13436	19.97966	16.731	5.7	3.7	-25.8	186.8	260.2	336.4	146.5E
SEP 22	21 36 32.5	-15 -2-50.1		19.17498	19.97998	18.419	5.7	3.7	-25.9	31.3	260.2	336.4	142.4E
SEP 26	21 36 6.4	-15 -4-53.3		19.21938	19.98030	20.008	5.7	3.7	-26.0	235.8	260.3	336.4	138.4E
SEP 30	21 35 42.5	-15 -6-44.7		19.26734	19.98062	21.496	5.7	3.7	-26.1	80.3	260.3	336.5	134.4E
OCT 4	21 35 21.0	-15 -8-23.5		19.31862	19.98094	22.883	5.7	3.6	-26.2	284.8	260.3	336.5	130.4E
OCT 8	21 35 2.2	-15 -9-48.7		19.37299	19.98126	24.166	5.8	3.6	-26.2	129.2	260.4	336.6	126.3E
OCT 12	21 34 46.1	-15-11 -0.1		19.43019	19.98158	25.341	5.8	3.6	-26.3	333.7	260.4	336.6	122.3E
OCT 16	21 34 32.8	-15-11-57.3		19.48997	19.98190	26.394	5.8	3.6	-26.4	178.1	260.4	336.7	118.3E
OCT 20	21 34 22.6	-15-12-39.3		19.55203	19.98222	27.310	5.8	3.6	-26.4	22.6	260.4	336.7	114.3E
OCT 24	21 34 15.4	-15-13 -6.1		19.61604	19.98254	28.084	5.8	3.6	-26.4	227.1	260.4	336.8	110.3E
OCT 28	21 34 11.3	-15-13-17.6		19.68168	19.98286	28.720	5.8	3.6	-26.5	71.5	260.4	336.8	106.3E
NOV 1	21 34 10.4	-15-13-13.5		19.74863	19.98318	29.220	5.8	3.6	-26.5	276.0	260.4	336.8	102.3E
NOV 5	21 34 12.6	-15-12-53.5		19.81659	19.98349	29.589	5.8	3.6	-26.5	120.4	260.4	336.9	98.3E
NOV 9	21 34 18.1	-15-12-17.9		19.88524	19.98381	29.824	5.8	3.5	-26.4	324.9	260.4	336.9	94.3E
NOV 13	21 34 26.8	-15-11-26.8		19.95428	19.98413	29.917	5.8	3.5	-26.4	169.3	260.4	337.0	90.3E
NOV 17	21 34 38.7	-15-10 19.7		20.02335	19.98444	29.858	5.8	3.5	-26.3	13.8	260.4	337.0	86.3E
NOV 21													

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 4	21 40 44.9	-14-38-38.4	20.74093	19.98820	19.062	5.9	3.4	-24.8	307.7	259.9	337.5	39.2E	
JAN 8	21 41 30.5	-14-34-44.7	20.78317	19.98852	17.482	5.9	3.4	-24.6	152.2	259.8	337.6	35.3E	
JAN 12	21 42 17.8	-14-30-42.3	20.82165	19.98883	15.816	5.9	3.4	-24.4	356.8	259.7	337.6	31.4E	
JAN 16	21 43 6.6	-14-26-32.4	20.85619	19.98914	14.078	5.9	3.4	-24.2	201.4	259.7	337.7	27.5E	
JAN 20	21 43 56.6	-14-22-15.9	20.88665	19.98945	12.281	5.9	3.4	-24.0	45.9	259.6	337.7	23.7E	
JAN 24	21 44 47.7	-14-17-53.4	20.91290	19.98976	10.440	5.9	3.4	-23.8	250.5	259.5	337.7	19.8E	
JAN 28	21 45 39.8	-14-13-25.9	20.93487	19.99006	8.567	5.9	3.4	-23.6	95.2	259.5	337.8	16.0E	
FEB 1	21 46 32.5	-14 -8-54.6	20.95247	19.99037	6.667	5.9	3.4	-23.3	299.8	259.4	337.8	12.2E	
FEB 5	21 47 25.9	-14 -4-20.1	20.96565	19.99068	4.737	5.9	3.4	-23.1	144.4	259.3	337.9	8.3E	
FEB 9	21 48 19.6	-13-59-43.0	20.97434	19.99099	2.781	5.9	3.4	-22.9	349.1	259.3	337.9	4.6E	
FEB 13	21 49 13.6	-13-55 -4.8	20.97850	19.99130	0.813	5.9	3.4	-22.6	193.7	259.2	338.0	1.0E	
FEB 17	21 50 7.5	-13-50-26.3	20.97810	19.99160	-1.152	5.9	3.4	-22.4	38.4	259.1	338.0	3.2W	
FEB 21	21 51 1.2	-13-45-48.3	20.97319	19.99191	-3.101	5.9	3.4	-22.2	243.1	259.1	338.0	7.0W	
FEB 25	21 51 54.6	-13-41-11.7	20.96380	19.99221	-5.022	5.9	3.4	-22.0	87.8	259.0	338.1	10.8W	
MAR 1	21 52 47.5	-13-36-38.0	20.95002	19.99252	-6.911	5.9	3.4	-21.7	292.5	258.9	338.1	14.5W	
MAR 5	21 53 39.6	-13-32 -7.5	20.93190	19.99283	-8.773	5.9	3.4	-21.5	137.3	258.9	338.2	18.3W	
MAR 9	21 54 30.9	-13-27-41.2	20.90951	19.99313	-10.603	5.9	3.4	-21.3	342.0	258.8	338.2	22.1W	
MAR 13	21 55 21.2	-13-23-20.2	20.88295	19.99343	-12.386	5.9	3.4	-21.1	186.8	258.7	338.3	25.9W	
MAR 17	21 56 10.2	-13-19 -5.6	20.85233	19.99374	-14.110	5.9	3.4	-20.9	31.5	258.7	338.3	29.7W	
MAR 21	21 56 57.9	-13-14-57.8	20.81781	19.99404	-15.763	5.9	3.4	-20.7	236.3	258.6	338.4	33.4W	
MAR 25	21 57 44.0	-13-10-58.0	20.77957	19.99435	-17.335	5.9	3.4	-20.5	81.1	258.6	338.4	37.2W	
MAR 29	21 58 28.5	-13 -7 -7.3	20.73779	19.99465	-18.826	5.9	3.4	-20.3	285.9	258.5	338.4	41.0W	
APR 2	21 59 11.1	-13 -3-25.9	20.69265	19.99495	-20.242	5.9	3.4	-20.1	130.7	258.5	338.5	44.7W	
APR 6	21 59 51.9	-12-59-54.8	20.64433	19.99525	-21.577	5.9	3.4	-19.9	335.5	258.4	338.5	48.5W	
APR 10	22 0 30.5	-12-56-35.0	20.59303	19.99555	-22.821	5.9	3.4	-19.8	180.3	258.4	338.6	52.3W	
APR 14	22 1 6.9	-12-53-27.1	20.53897	19.99586	-23.961	5.9	3.4	-19.6	25.1	258.3	338.6	56.0W	
APR 18	22 1 41.0	-12-50-31.6	20.48240	19.99616	-24.989	5.9	3.4	-19.5	229.9	258.3	338.7	59.8W	
APR 22	22 2 12.7	-12-47-49.4	20.42360	19.99646	-25.898	5.9	3.5	-19.3	74.8	258.3	338.7	63.6W	
APR 26	22 2 41.7	-12-45-21.3	20.36284	19.99676	-26.691	5.9	3.5	-19.2	279.6	258.2	338.7	67.3W	
APR 30	22 3 8.2	-12-43 -7.1	20.30036	19.99706	-27.377	5.9	3.5	-19.1	124.4	258.2	338.8	71.1W	
MAY 4	22 3 32.0	-12-41 -7.6	20.23643	19.99736	-27.952	5.9	3.5	-19.0	329.3	258.2	338.8	74.9W	
MAY 8	22 3 53.0	-12-39-23.6	20.17131	19.99766	-28.406	5.8	3.5	-18.9	174.1	258.2	338.9	78.7W	
MAY 12	22 4 11.0	-12-37-55.1	20.10528	19.99795	-28.731	5.8	3.5	-18.8	18.9	258.1	338.9	82.5W	
MAY 16	22 4 26.3	-12-36-42.4	20.03867	19.99825	-28.919	5.8	3.5	-18.8	223.8	258.1	339.0	86.3W	
MAY 20	22 4 38.5	-12-35-46.0	19.97177	19.99855	-28.971	5.8	3.5	-18.7	68.6	258.1	339.0	90.1W	
MAY 24	22 4 47.7	-12-35 -6.0	19.90491	19.99885	-28.893	5.8	3.5	-18.7	273.5	258.1	339.0	93.9W	
MAY 28	22 4 54.0	-12-34-42.1	19.83836	19.99915	-28.695	5.8	3.6	-18.6	118.3	258.1	339.1	97.7W	
JUN 1	22 4 57.2	-12-34-34.5	19.77242	19.99944	-28.376	5.8	3.6	-18.6	323.1	258.1	339.1	101.5W	
JUN 5	22 4 57.5	-12-34-43.5	19.70735	19.99974	-27.928	5.8	3.6	-18.6	168.0	258.1	339.2	105.3W	
JUN 9	22 4 54.7	-12-35 -8.5	19.64348	20.00003	-27.347	5.8	3.6	-18.6	12.8	258.1	339.2	109.2W	
JUN 13	22 4 49.0	-12-35-49.3	19.58110	20.00033	-26.631	5.8	3.6	-18.7	217.6	258.1	339.3	113.0W	
JUN 17	22 4 40.4	-12-36-45.9	19.52054	20.00063	-25.782	5.8	3.6	-18.7	62.4	258.1	339.3	116.9W	
JUN 21	22 4 29.0	-12-37-57.8	19.46207	20.00092	-24.814	5.8	3.6	-18.8	267.2	258.1	339.3	120.8W	
JUN 25	22 4 14.8	-12-39-24.0	19.40596	20.00121	-23.739	5.8	3.6	-18.8	112.0	258.1	339.4	124.6W	
JUN 29	22 3 57.9	-12-41 -4.4	19.35246	20.00151	-22.557	5.8	3.6	-18.9	316.8	258.2	339.4	128.5W	
JUL 3	22 3 38.5	-12-42-58.4	19.30182	20.00180	-21.266	5.7	3.7	-19.0	161.5	258.2	339.5	132.4W	
JUL 7	22 3 16.6	-12-45 -4.9	19.25429	20.00210	-19.865	5.7	3.7	-19.1	6.3	258.2	339.5	136.3W	
JUL 11	22 2 52.5	-12-47-23.2	19.21012	20.00239	-18.355	5.7	3.7	-19.2	211.0	258.2	339.6	140.2W	
JUL 15	22 2 26.1	-12-49-52.8	19.16955	20.00268	-16.748	5.7	3.7	-19.3	55.8	258.3	339.6	144.2W	
JUL 19	22 1 57.8	-12-52-32.4	19.13279	20.00297	-15.059	5.7	3.7	-19.4	260.5	258.3	339.6	148.1W	
JUL 23	22 1 27.7	-12-55-20.5	19.10002	20.00327	-13.304	5.7	3.7	-19.5	105.2	258.3	339.7	152.1W	
JUL 27	22 0 56.0	-12-58-16.6	19.07137	20.00356	-11.485	5.7	3.7	-19.7	309.9	258.4	339.7	156.0W	
JUL 31	22 0 22.8	-13 -1-19.5	19.04699	20.00385	-9.603	5.7	3.7	-19.8	154.6	258.4	339.8	160.0W	
AUG 4	21 59 48.4	-13 -4-27.7	19.02704	20.00414	-7.663	5.7	3.7	-20.0	359.3	258.5	339.8	164.0W	
AUG 8	21 59 13.1	-13 -7-40.1	19.01162	20.00443	-5.669	5.7	3.7	-20.1	203.9	258.5	339.9	167.9W	
AUG 12	21 58 36.9	-13-10-55.8	19.00087	20.00472	-3.638	5.7	3.7	-20.3	48.6	258.5	339.9	171.9W	
AUG 16	21 58 0.3	-13-14-13.0	18.99482	20.00501	-1.589	5.7	3.7	-20.4	253.2	258.6	340.0	175.9W	
AUG 20	21 57 23.4	-13-17-30.3	18.99352	20.00530	0.462	5.7	3.7	-20.6	97.8	258.6	340.0	179.2W	
AUG 24	21 56 46.5	-13-20-46.8	18.99695	20.00558	2.512	5.7	3.7	-20.7	302.4	258.7	340.0	176.0E	
AUG 28	21 56 9.7	-13-24 -1.2	19.00512	20.00587	4.557	5.7	3.7	-20.9	147.0	258.7	340.1	172.0E	
SEP 1	21 55 33.4	-13-27-11.8	19.01800	20.00616	6.592	5.7	3.7	-21.1	351.6	258.8	340.1	168.0E	
SEP 5	21 54 57.8	-13-30-17.8	19.03556	20.00645	8.608	5.7	3.7	-21.2	196.2	258.8	340.2	163.9E	
SEP 9	21 54 23.1	-13-33-18.0	19.05773	20.00673	10.588	5.7	3.7	-21.3	40.7	258.8	340.2	159.9E	
SEP 13	21 53 49.6	-13-36-10.7	19.08443	20.00702	12.511	5.7	3.7	-21.5	245.3	258.9	340.3	155.9E	
SEP 17	21 53 17.6	-13-38-55.0	19.11548	20.00731	14.365	5.7	3.7	-21.6	89.8	258.9	340.3	151.9E	
SEP 21	21 52 47.1	-13-41-30.1	19.15074	20.00759	16.147	5.7	3.7	-21.8	294.3	259.0	340.3	147.8E	
SEP 25	21 52 18.4	-13-43-54.7	19.19003	20.00788	17.856	5.7	3.7	-21.9	138.8	259.0	340.4	143.8E	
SEP 29	21 51 51.8	-13-46 -7.8	19.23317	20.00816	19.487	5.7	3.7	-22.0	343.3	259.0	340.4	139.7E	
OCT 3	21 51 27.4	-13-48 -8.8	19.27999	20.00844	21.031	5.7	3.7	-22.1	187.8	259.1	340.5	135.7E	
OCT 7	21 51 5.3	-13-49-57.0	19.33027	20.00873	22.475	5.8	3.6	-22.2	32.3	259.1	340.5	131.7E	
OCT 11	21 50 45.8	-13-51-31.1	19.38374	20.00901	23.798	5.8	3.6	-22.3	236.8	259.1	340.6	127.6E	
OCT 15	21 50 29.0	-13-52-50.7	19.44012	20.00929	24.996	5.8	3.6	-22.3	81.2	259.1	340.6	123.6E	
OCT 19	21 50 14.9	-13-53-55.6	19.49913	20.00958	26.071	5.8	3.6	-22.4	285.7	259.1	340.6	119.6E	
OCT 23	21 50 3.8	-13-54-44.9	19.56048	20.00986	27.023	5.8	3.6	-22.4	130.2	259.2	340.7	115.6E	
OCT 27	21 49 55.6	-13-55-18.4	19.62389	20.01014	27.851	5.8	3.6	-22.5	334.6	259.2	340.7	111.5E	
OCT 31	21 49 50.5	-13-55-35.9	19.68906	20.01042	28.552	5.8	3.6	-22.5	179.1	259.2	340.8	107.5E	
NOV 4	21 49 48.5	-13-55-37.3	19.75570	20.01070	29.114	5.8	3.6	-22.5	23.5	259.2	340.8	103.5E	
NOV 8	21 49 49.7	-13-55-21.8	19.82346	20.01098	29.524	5.8	3.6	-22.5	228.0	259.2	340.9	99.5E	
NOV 12	21 49 54.1	-13-54-49.8	19.89200	20.01126	29.783	5.8	3.5	-22.5	72.4	259.2	340.9	95.5E	
NOV 16	21 50 1.7	-13-54 -1.4	19.96096	20.01154	29.900	5.8	3.5	-22.5	276.9	259.2	340.9	91.5E	
NOV 20	21 50 12.4	-13-52-56.6	20.03004	20.01182	29.879	5.8	3.5	-22.4	121.3	259.1	341.0	87.5E	
NOV 24	21 50 26.3	-13-51-35.4	20.09891	20.01210	29.725	5.8	3.5	-22.3	325.8	259.1	341.0	83.6E	
NOV 28	21 50 43.2	-13-49-58.4	20.16728	20.01238	29.437	5.8	3.5	-22.3	170.2	259.1	341.1	79.6E	
DEC 2	21 51 3.2	-13-48 -5.8	20.23481										

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 3	21 55 21.3	-13-24-32.7	20.70832	20.01487	21.003	5.9	3.4	-21.1	210.6	258.8	341.5	44.2E	
JAN 7	21 56 4.1	-13-20-41.4	20.75514	20.01514	19.511	5.9	3.4	-20.9	55.2	258.7	341.5	40.3E	
JAN 11	21 56 48.6	-13-16-40.3	20.79841	20.01542	17.938	5.9	3.4	-20.7	259.7	258.6	341.5	36.4E	
JAN 15	21 57 34.7	-13-12-30.3	20.83797	20.01569	16.294	5.9	3.4	-20.5	104.3	258.6	341.6	32.5E	
JAN 19	21 58 22.4	-13 -8-12.1	20.87366	20.01596	14.591	5.9	3.4	-20.3	308.8	258.5	341.6	28.7E	
JAN 23	21 59 11.4	-13 -3-47.1	20.90535	20.01624	12.831	5.9	3.4	-20.1	153.4	258.5	341.7	24.8E	
JAN 27	22 0 1.5	-12-59-15.6	20.93290	20.01651	11.014	5.9	3.4	-19.9	358.0	258.4	341.7	21.0E	
JAN 31	22 0 52.6	-12-54-38.5	20.95620	20.01678	9.142	5.9	3.4	-19.7	202.6	258.4	341.8	17.1E	
FEB 4	22 1 44.5	-12-49-57.2	20.97511	20.01706	7.229	5.9	3.4	-19.5	47.3	258.3	341.8	13.3E	
FEB 8	22 2 37.0	-12-45-12.4	20.98959	20.01733	5.294	5.9	3.4	-19.2	251.9	258.2	341.9	9.5E	
FEB 12	22 3 30.0	-12-40-25.0	20.99957	20.01760	3.348	5.9	3.4	-19.0	96.5	258.2	341.9	5.7E	
FEB 16	22 4 23.1	-12-35-36.1	21.00506	20.01787	1.401	5.9	3.4	-18.8	301.2	258.1	341.9	1.9E	
FEB 20	22 5 16.3	-12-30-46.9	21.00605	20.01814	-0.543	5.9	3.4	-18.5	145.9	258.1	342.0	2.1W	
FEB 24	22 6 9.4	-12-25-57.8	21.00255	20.01841	-2.487	5.9	3.4	-18.3	350.6	258.0	342.0	5.8W	
FEB 28	22 7 2.3	-12-21-10.0	20.99457	20.01868	-4.425	5.9	3.4	-18.1	195.3	257.9	342.1	9.6W	
MAR 4	22 7 54.7	-12-16-24.8	20.98213	20.01895	-6.342	5.9	3.4	-17.9	40.0	257.9	342.1	13.4W	
MAR 8	22 8 46.4	-12-11-42.9	20.96530	20.01922	-8.223	5.9	3.4	-17.6	244.7	257.8	342.2	17.2W	
MAR 12	22 9 37.3	-12 -7 -5.2	20.94418	20.01949	-10.057	5.9	3.4	-17.4	89.4	257.8	342.2	20.9W	
MAR 16	22 10 27.3	-12 -2-32.8	20.91888	20.01976	-11.834	5.9	3.4	-17.2	294.2	257.7	342.2	24.7W	
MAR 20	22 11 16.0	-11-58 -6.9	20.88955	20.02002	-13.554	5.9	3.4	-17.0	138.9	257.7	342.3	28.5W	
MAR 24	22 12 3.5	-11-53-47.8	20.85630	20.02029	-15.222	5.9	3.4	-16.8	343.7	257.6	342.3	32.2W	
MAR 28	22 12 49.6	-11-49-36.5	20.81927	20.02056	-16.830	5.9	3.4	-16.6	188.5	257.6	342.4	36.0W	
APR 1	22 13 34.1	-11-45-34.4	20.77860	20.02083	-18.365	5.9	3.4	-16.4	33.3	257.5	342.4	39.8W	
APR 5	22 14 16.8	-11-41-41.9	20.73449	20.02109	-19.813	5.9	3.4	-16.2	238.0	257.5	342.5	43.5W	
APR 9	22 14 57.6	-11-37-59.8	20.68714	20.02136	-21.167	5.9	3.4	-16.0	82.9	257.4	342.5	47.3W	
APR 13	22 15 36.4	-11-34-29.3	20.63677	20.02162	-22.419	5.9	3.4	-15.9	287.7	257.4	342.5	51.0W	
APR 17	22 16 13.1	-11-31-11.0	20.58363	20.02189	-23.572	5.9	3.4	-15.7	132.5	257.4	342.6	54.8W	
APR 21	22 16 47.5	-11-28 -5.1	20.52794	20.02215	-24.633	5.9	3.4	-15.6	337.3	257.3	342.6	58.6W	
APR 25	22 17 19.6	-11-25-12.6	20.46990	20.02242	-25.595	5.9	3.4	-15.4	182.1	257.3	342.7	62.3W	
APR 29	22 17 49.1	-11-22-34.4	20.40977	20.02268	-26.446	5.9	3.5	-15.3	27.0	257.3	342.7	66.1W	
MAY 3	22 18 16.1	-11-20-10.6	20.34780	20.02295	-27.176	5.9	3.5	-15.2	231.8	257.2	342.8	69.8W	
MAY 7	22 18 40.5	-11-18 -2.0	20.28430	20.02321	-27.779	5.9	3.5	-15.1	76.6	257.2	342.8	73.6W	
MAY 11	22 19 2.1	-11-16 -9.1	20.21955	20.02347	-28.254	5.9	3.5	-15.0	281.5	257.2	342.8	77.4W	
MAY 15	22 19 20.9	-11-14-32.4	20.15385	20.02373	-28.605	5.8	3.5	-14.9	126.3	257.2	342.9	81.2W	
MAY 19	22 19 36.9	-11-13-11.5	20.08748	20.02400	-28.840	5.8	3.5	-14.8	331.1	257.2	342.9	85.0W	
MAY 23	22 19 50.0	-11-12 -7.3	20.02069	20.02426	-28.957	5.8	3.5	-14.8	176.0	257.2	343.0	88.7W	
MAY 27	22 20 0.1	-11-11-20.0	19.95379	20.02452	-28.944	5.8	3.5	-14.7	20.8	257.1	343.0	92.5W	
MAY 31	22 20 7.3	-11-10-49.4	19.88707	20.02478	-28.794	5.8	3.5	-14.7	225.7	257.1	343.1	96.4W	
JUN 4	22 20 11.5	-11-10-35.7	19.82085	20.02504	-28.507	5.8	3.6	-14.7	70.5	257.1	343.1	100.2W	
JUN 8	22 20 12.7	-11-10-39.2	19.75546	20.02530	-28.084	5.8	3.6	-14.7	275.3	257.1	343.1	104.0W	
JUN 12	22 20 11.0	-11-10-59.3	19.69119	20.02556	-27.535	5.8	3.6	-14.7	120.1	257.1	343.2	107.8W	
JUN 16	22 20 6.3	-11-11-35.6	19.62832	20.02582	-26.870	5.8	3.6	-14.7	325.0	257.1	343.2	111.7W	
JUN 20	22 19 58.8	-11-12-28.3	19.56713	20.02608	-26.088	5.8	3.6	-14.7	169.8	257.1	343.3	115.5W	
JUN 24	22 19 48.5	-11-13-36.9	19.50788	20.02634	-25.181	5.8	3.6	-14.8	14.6	257.2	343.3	119.4W	
JUN 28	22 19 35.3	-11-15 -0.7	19.45088	20.02659	-24.148	5.8	3.6	-14.9	219.4	257.2	343.4	123.3W	
JUL 2	22 19 19.5	-11-16-39.4	19.39640	20.02685	-22.990	5.8	3.6	-14.9	64.2	257.2	343.4	127.1W	
JUL 6	22 19 1.1	-11-18-32.5	19.34474	20.02711	-21.717	5.8	3.6	-15.0	268.9	257.2	343.4	131.0W	
JUL 10	22 18 40.3	-11-20-38.9	19.29614	20.02736	-20.341	5.8	3.7	-15.1	113.7	257.2	343.5	134.9W	
JUL 14	22 18 17.2	-11-22-57.6	19.25082	20.02762	-18.876	5.7	3.7	-15.2	318.4	257.3	343.5	138.9W	
JUL 18	22 17 51.8	-11-25-28.1	19.20899	20.02788	-17.322	5.7	3.7	-15.3	163.2	257.3	343.6	142.8W	
JUL 22	22 17 24.5	-11-28 -9.4	19.17085	20.02813	-15.678	5.7	3.7	-15.4	7.9	257.3	343.6	146.7W	
JUL 26	22 16 55.2	-11-31 -0.2	19.13661	20.02839	-13.945	5.7	3.7	-15.5	212.6	257.3	343.7	150.7W	
JUL 30	22 16 24.4	-11-33-59.8	19.10648	20.02864	-12.130	5.7	3.7	-15.7	57.3	257.4	343.7	154.6W	
AUG 3	22 15 52.0	-11-37 -6.9	19.08061	20.02889	-10.248	5.7	3.7	-15.8	262.0	257.4	343.7	158.6W	
AUG 7	22 15 18.3	-11-40-20.0	19.05916	20.02915	-8.316	5.7	3.7	-16.0	106.7	257.4	343.8	162.6W	
AUG 11	22 14 43.7	-11-43-37.7	19.04221	20.02940	-6.348	5.7	3.7	-16.1	311.4	257.5	343.8	166.5W	
AUG 15	22 14 8.2	-11-46-59.3	19.02985	20.02966	-4.347	5.7	3.7	-16.3	156.0	257.5	343.9	170.5W	
AUG 19	22 13 32.1	-11-50-23.1	19.02215	20.02991	-2.315	5.7	3.7	-16.4	0.7	257.5	343.9	174.5W	
AUG 23	22 12 55.6	-11-53-47.6	19.01917	20.03016	-0.257	5.7	3.7	-16.6	205.3	257.6	344.0	178.4W	
AUG 27	22 12 19.0	-11-57-11.9	19.02096	20.03041	1.816	5.7	3.7	-16.7	49.9	257.6	344.0	177.3E	
AUG 31	22 11 42.5	-12 -0-34.6	19.02755	20.03066	3.887	5.7	3.7	-16.9	254.5	257.7	344.0	173.3E	
SEP 4	22 11 6.4	-12 -3-53.8	19.03890	20.03091	5.935	5.7	3.7	-17.1	99.1	257.7	344.1	169.3E	
SEP 8	22 10 30.9	-12 -7 -8.5	19.05494	20.03116	7.949	5.7	3.7	-17.2	303.7	257.7	344.1	165.3E	
SEP 12	22 9 56.3	-12-10-17.6	19.07559	20.03142	9.925	5.7	3.7	-17.4	148.2	257.8	344.2	161.3E	
SEP 16	22 9 22.7	-12-13-19.6	19.10076	20.03166	11.861	5.7	3.7	-17.5	352.8	257.8	344.2	157.2E	
SEP 20	22 8 50.5	-12-16-13.3	19.13035	20.03191	13.750	5.7	3.7	-17.6	197.3	257.8	344.3	153.2E	
SEP 24	22 8 19.7	-12-18-57.9	19.16424	20.03216	15.580	5.7	3.7	-17.8	41.8	257.9	344.3	149.1E	
SEP 28	22 7 50.7	-12-21-32.2	19.20227	20.03241	17.336	5.7	3.7	-17.9	246.3	257.9	344.3	145.1E	
OCT 2	22 7 23.6	-12-23-54.6	19.24426	20.03266	18.998	5.7	3.7	-18.0	90.8	257.9	344.4	141.1E	
OCT 6	22 6 58.8	-12-26 -4.6	19.28997	20.03291	20.559	5.8	3.7	-18.1	295.3	258.0	344.4	137.0E	
OCT 10	22 6 36.1	-12-28 -1.5	19.33917	20.03316	22.018	5.8	3.6	-18.2	139.8	258.0	344.5	133.0E	
OCT 14	22 6 16.0	-12-29-44.2	19.39162	20.03340	23.376	5.8	3.6	-18.3	344.3	258.0	344.5	128.9E	
OCT 18	22 5 58.4	-12-31-12.1	19.44709	20.03365	24.627	5.8	3.6	-18.4	188.8	258.0	344.6	124.9E	
OCT 22	22 5 43.6	-12-32-24.8	19.50532	20.03390	25.764	5.8	3.6	-18.4	33.2	258.0	344.6	120.9E	
OCT 26	22 5 31.5	-12-33-21.8	19.56603	20.03414	26.773	5.8	3.6	-18.5	237.7	258.1	344.7	116.8E	
OCT 30	22 5 22.5	-12-34 -1.9	19.62891	20.03439	27.640	5.8	3.6	-18.5	82.1	258.1	344.7	112.8E	
NOV 3	22 5 16.5	-12-34-25.5	19.69362	20.03463	28.363	5.8	3.6	-18.6	286.6	258.1	344.7	108.8E	
NOV 7	22 5 13.5	-12-34-32.3	19.75985	20.03488	28.949	5.8	3.6	-18.6	131.0	258.1	344.8	104.7E	
NOV 11	22 5 13.7	-12-34-21.8	19.82727	20.03512	29.402	5.8	3.6	-18.6	335.5	258.1	344.8	100.7E	
NOV 15	22 5 17.0	-12-33-54.2	19.89559	20.03536	29.720	5.8	3.5	-18.6	179.9	258.1	344.9	96.7E	
NOV 19	22 5 23.4	-12-33 -9.6	19.96448	20.03561	29.900	5.8	3.5	-18.5	24.4	258.1	344.9	92.7E	
NOV 23	22 5 33.0	-12-32 -7.8	20.03363	20.03585	29.934	5.8	3.5	-18.5	228.8	258.0	345.0	88.7E	
NOV 27	22 5 45.8	-12-30-48.6	20.10267	20.03609	29.813	5.8	3.5	-18.4	73.3	258.0	345.0	84.7E	
DEC 1	22 6 1.6	-12-29-12.9	20.17126	20.03633</									

2004 URANUS

Geocentric Planetary Ephemeris

2004 URANUS

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	22 9	49.6	-12 -7-14.2	20.66691	20.03825	22.762	5.9	3.4	-17.4	113.6	257.8	345.4	49.2E
JAN 6	22 10	29.2	-12 -3-28.6	20.71794	20.03849	21.401	5.9	3.4	-17.2	318.1	257.7	345.4	45.3E
JAN 10	22 11	10.7	-11-59-32.1	20.76573	20.03873	19.953	5.9	3.4	-17.0	162.7	257.7	345.5	41.4E
JAN 14	22 11	54.1	-11-55-25.5	20.81007	20.03897	18.422	5.9	3.4	-16.8	7.2	257.6	345.5	37.5E
JAN 18	22 12	39.3	-11-51 -9.3	20.85078	20.03920	16.806	5.9	3.4	-16.6	211.7	257.6	345.6	33.6E
JAN 22	22 13	26.0	-11-46-44.2	20.88766	20.03944	15.109	5.9	3.4	-16.4	56.3	257.5	345.6	29.8E
JAN 26	22 14	14.0	-11-42-11.8	20.92054	20.03968	13.344	5.9	3.4	-16.2	260.9	257.5	345.6	25.9E
JAN 30	22 15	3.2	-11-37-32.6	20.94929	20.03991	11.530	5.9	3.4	-16.0	105.5	257.4	345.7	22.1E
FEB 3	22 15	53.4	-11-32-47.6	20.97379	20.04015	9.678	5.9	3.4	-15.8	310.1	257.4	345.7	18.2E
FEB 7	22 16	44.4	-11-27-58.0	20.99399	20.04038	7.796	5.9	3.4	-15.6	154.7	257.3	345.8	14.4E
FEB 11	22 17	36.1	-11-23 -4.8	21.00980	20.04062	5.888	5.9	3.4	-15.4	359.3	257.3	345.8	10.6E
FEB 15	22 18	28.3	-11-18 -8.5	21.02117	20.04085	3.952	5.9	3.4	-15.1	204.0	257.2	345.9	6.8E
FEB 19	22 19	20.8	-11-13-10.2	21.02805	20.04109	1.994	5.9	3.4	-14.9	48.6	257.2	345.9	3.0E
FEB 23	22 20	13.4	-11 -8-11.4	21.03039	20.04132	0.030	5.9	3.4	-14.7	253.3	257.1	345.9	1.1W
FEB 27	22 21	5.9	-11 -3-12.7	21.02820	20.04155	-1.923	5.9	3.4	-14.4	98.0	257.1	346.0	4.7W
MAR 2	22 21	58.2	-10-58-15.2	21.02153	20.04178	-3.854	5.9	3.4	-14.2	302.7	257.0	346.0	8.5W
MAR 6	22 22	50.1	-10-53-20.1	21.01042	20.04202	-5.756	5.9	3.4	-14.0	147.4	257.0	346.1	12.2W
MAR 10	22 23	41.4	-10-48-28.4	20.99496	20.04225	-7.628	5.9	3.4	-13.8	352.1	256.9	346.1	16.0W
MAR 14	22 24	32.0	-10-43-40.5	20.97521	20.04248	-9.470	5.9	3.4	-13.6	196.8	256.9	346.2	19.8W
MAR 18	22 25	21.7	-10-38-57.8	20.95124	20.04271	-11.277	5.9	3.4	-13.3	41.6	256.8	346.2	23.5W
MAR 22	22 26	10.3	-10-34-21.4	20.92315	20.04294	-13.033	5.9	3.4	-13.1	246.3	256.8	346.2	27.3W
MAR 26	22 26	57.6	-10-29-52.0	20.89108	20.04317	-14.723	5.9	3.4	-12.9	91.1	256.7	346.3	31.1W
MAR 30	22 27	43.6	-10-25-30.6	20.85519	20.04340	-16.338	5.9	3.4	-12.7	295.8	256.7	346.3	34.8W
APR 3	22 28	28.1	-10-21-18.3	20.81565	20.04363	-17.874	5.9	3.4	-12.5	140.6	256.7	346.4	38.6W
APR 7	22 29	10.8	-10-17-15.9	20.77267	20.04386	-19.331	5.9	3.4	-12.3	345.4	256.6	346.4	42.3W
APR 11	22 29	51.8	-10-13-23.7	20.72640	20.04409	-20.713	5.9	3.4	-12.2	190.2	256.6	346.5	46.1W
APR 15	22 30	30.9	-10 -9-43.0	20.67703	20.04432	-22.013	5.9	3.4	-12.0	35.0	256.6	346.5	49.8W
APR 19	22 31	7.8	-10 -6-14.6	20.62477	20.04455	-23.216	5.9	3.4	-11.8	239.8	256.5	346.5	53.6W
APR 23	22 31	42.6	-10 -2-59.0	20.56985	20.04477	-24.312	5.9	3.4	-11.7	84.7	256.5	346.6	57.3W
APR 27	22 32	15.1	-9-59-57.0	20.51253	20.04500	-25.295	5.9	3.4	-11.5	289.5	256.5	346.6	61.1W
MAY 1	22 32	45.1	-9-57 -9.6	20.45307	20.04523	-26.161	5.9	3.4	-11.4	134.3	256.4	346.7	64.8W
MAY 5	22 33	12.6	-9-54-36.9	20.39174	20.04545	-26.916	5.9	3.5	-11.3	339.1	256.4	346.7	68.6W
MAY 9	22 33	37.6	-9-52-19.2	20.32879	20.04568	-27.564	5.9	3.5	-11.2	184.0	256.4	346.8	72.3W
MAY 13	22 33	59.9	-9-50-17.6	20.26447	20.04591	-28.100	5.9	3.5	-11.1	28.8	256.4	346.8	76.1W
MAY 17	22 34	19.5	-9-48-32.3	20.19905	20.04613	-28.512	5.9	3.5	-11.0	233.7	256.4	346.8	79.9W
MAY 21	22 34	36.2	-9-47 -3.5	20.13284	20.04636	-28.792	5.8	3.5	-10.9	78.5	256.4	346.9	83.7W
MAY 25	22 34	50.1	-9-45-51.6	20.06613	20.04658	-28.936	5.8	3.5	-10.9	283.3	256.3	346.9	87.4W
MAY 29	22 35	1.1	-9-44-57.2	19.99925	20.04680	-28.947	5.8	3.5	-10.8	128.2	256.3	347.0	91.2W
JUN 2	22 35	9.2	-9-44-20.0	19.93248	20.04703	-28.832	5.8	3.5	-10.8	333.0	256.3	347.0	95.0W
JUN 6	22 35	14.3	-9-43-59.7	19.86612	20.04725	-28.599	5.8	3.5	-10.8	177.8	256.3	347.1	98.8W
JUN 10	22 35	16.6	-9-43-57.0	19.80043	20.04747	-28.244	5.8	3.6	-10.7	22.7	256.3	347.1	102.7W
JUN 14	22 35	15.8	-9-44-11.5	19.73572	20.04770	-27.757	5.8	3.6	-10.8	227.5	256.3	347.1	106.5W
JUN 18	22 35	12.2	-9-44-42.9	19.67229	20.04792	-27.135	5.8	3.6	-10.8	72.3	256.3	347.2	110.3W
JUN 22	22 35	5.7	-9-45-31.3	19.61045	20.04814	-26.379	5.8	3.6	-10.8	277.1	256.3	347.2	114.2W
JUN 26	22 34	56.3	-9-46-36.3	19.55050	20.04836	-25.496	5.8	3.6	-10.8	121.9	256.3	347.3	118.0W
JUN 30	22 34	44.2	-9-47-57.1	19.49274	20.04858	-24.496	5.8	3.6	-10.9	326.7	256.4	347.3	121.9W
JUL 4	22 34	29.5	-9-49-33.0	19.43740	20.04880	-23.392	5.8	3.6	-11.0	171.5	256.4	347.4	125.8W
JUL 8	22 34	12.2	-9-51-24.0	19.38474	20.04902	-22.180	5.8	3.6	-11.0	16.3	256.4	347.4	129.7W
JUL 12	22 33	52.3	-9-53-29.0	19.33500	20.04924	-20.855	5.8	3.6	-11.1	221.1	256.4	347.4	133.6W
JUL 16	22 33	30.2	-9-55-47.1	19.28846	20.04946	-19.418	5.8	3.7	-11.2	65.8	256.4	347.5	137.5W
JUL 20	22 33	5.8	-9-58-17.9	19.24536	20.04968	-17.877	5.7	3.7	-11.3	270.6	256.4	347.5	141.4W
JUL 24	22 32	39.3	-10 -1 -0.3	19.20593	20.04989	-16.244	5.7	3.7	-11.4	115.3	256.5	347.6	145.3W
JUL 28	22 32	10.9	-10 -3-52.7	19.17036	20.05011	-14.532	5.7	3.7	-11.6	320.0	256.5	347.6	149.3W
AUG 1	22 31	40.9	-10 -6-54.2	19.13883	20.05033	-12.756	5.7	3.7	-11.7	164.7	256.5	347.7	153.2W
AUG 5	22 31	9.3	-10-10 -4.0	19.11147	20.05055	-10.916	5.7	3.7	-11.8	9.4	256.5	347.7	157.2W
AUG 9	22 30	36.4	-10-13-20.6	19.08844	20.05076	-9.010	5.7	3.7	-12.0	214.1	256.6	347.7	161.2W
AUG 13	22 30	2.4	-10-16-42.7	19.06988	20.05098	-7.046	5.7	3.7	-12.1	58.8	256.6	347.8	165.2W
AUG 17	22 29	27.4	-10-20 -9.2	19.05592	20.05119	-5.033	5.7	3.7	-12.3	263.5	256.6	347.8	169.2W
AUG 21	22 28	51.8	-10-23-38.7	19.04664	20.05141	-2.990	5.7	3.7	-12.4	108.1	256.7	347.9	173.1W
AUG 25	22 28	15.7	-10-27 -9.4	19.04211	20.05162	-0.932	5.7	3.7	-12.6	312.7	256.7	347.9	177.1W
AUG 29	22 27	39.5	-10-30-40.0	19.04233	20.05184	1.125	5.7	3.7	-12.8	157.3	256.7	348.0	178.5E
SEP 2	22 27	3.3	-10-34 -9.5	19.04730	20.05205	3.180	5.7	3.7	-12.9	2.0	256.8	348.0	174.7E
SEP 6	22 26	27.4	-10-37-36.2	19.05701	20.05226	5.232	5.7	3.7	-13.1	206.5	256.8	348.0	170.7E
SEP 10	22 25	52.0	-10-40-58.7	19.07146	20.05247	7.272	5.7	3.7	-13.2	51.1	256.8	348.1	166.6E
SEP 14	22 25	17.4	-10-44-16.2	19.09059	20.05269	9.286	5.7	3.7	-13.4	255.7	256.9	348.1	162.6E
SEP 18	22 24	43.7	-10-47-26.8	19.11432	20.05290	11.256	5.7	3.7	-13.5	100.2	256.9	348.2	158.6E
SEP 22	22 24	11.3	-10-50-29.1	19.14254	20.05311	13.166	5.7	3.7	-13.7	304.8	256.9	348.2	154.5E
SEP 26	22 23	40.3	-10-53-22.1	19.17509	20.05332	15.003	5.7	3.7	-13.8	149.3	256.9	348.3	150.5E
SEP 30	22 23	11.0	-10-56 -4.9	19.21180	20.05353	16.768	5.7	3.7	-13.9	353.8	257.0	348.3	146.4E
OCT 4	22 22	43.6	-10-58-36.1	19.25250	20.05374	18.459	5.7	3.7	-14.0	198.3	257.0	348.3	142.4E
OCT 8	22 22	18.2	-11 -0-54.8	19.29702	20.05395	20.069	5.8	3.7	-14.1	42.8	257.0	348.4	138.3E
OCT 12	22 21	54.9	-11 -3 -0.4	19.34515	20.05416	21.586	5.8	3.6	-14.2	247.3	257.0	348.4	134.2E
OCT 16	22 21	34.1	-11 -4-51.6	19.39667	20.05437	22.993	5.8	3.6	-14.3	91.8	257.1	348.5	130.2E
OCT 20	22 21	15.9	-11 -6-27.4	19.45129	20.05457	24.277	5.8	3.6	-14.4	296.3	257.1	348.5	126.1E
OCT 24	22 21	0.3	-11 -7-47.6	19.50873	20.05478	25.433	5.8	3.6	-14.5	140.7	257.1	348.6	122.1E
OCT 28	22 20	47.5	-11 -8-51.7	19.56870	20.05499	26.465	5.8	3.6	-14.5	345.2	257.1	348.6	118.1E
NOV 1	22 20	37.6	-11 -9-38.7	19.63092	20.05520	27.376	5.8	3.6	-14.6	189.6	257.1	348.7	114.0E
NOV 5	22 20	30.7	-11-10 -8.8	19.69509	20.05540	28.159	5.8	3.6	-14.6	34.1	257.1	348.7	110.0E
NOV 9	22 20	26.8	-11-10-21.7	19.76092	20.05561	28.809	5.8	3.6	-14.6	238.5	257.1	348.7	105.9E
NOV 13	22 20	25.9	-11-10-16.7	19.82808	20.05581	29.314	5.8	3.6	-14.6	83.0	257.1	348.8	101.9E
NOV 17	22 20	28.2	-11 -9-53.6	19.89624	20.05602	29.665	5.8	3.5	-14.6	287.4	257.1	348.8	97.9E
NOV 21	22 20	33.6</											

2005 URANUS

Geocentric Planetary Ephemeris

2005 URANUS

Date (0 DT)	RA (h m s)	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	22 24 47.5	-10-43-21.0	20.67211	20.05845	23.157	5.9	3.4	-13.5	221.1	256.9	349.3	50.3E
JAN 8	22 25 26.0	-10-39-32.2	20.72409	20.05865	21.827	5.9	3.4	-13.3	65.6	256.8	349.4	46.4E
JAN 12	22 26 6.5	-10-35-31.5	20.77288	20.05885	20.389	5.9	3.4	-13.1	270.1	256.8	349.4	42.5E
JAN 16	22 26 49.0	-10-31-20.3	20.81823	20.05905	18.860	5.9	3.4	-13.0	114.7	256.8	349.5	38.6E
JAN 20	22 27 33.1	-10-26-59.1	20.85996	20.05925	17.256	5.9	3.4	-12.8	319.2	256.7	349.5	34.7E
JAN 24	22 28 18.8	-10-22-28.8	20.89791	20.05945	15.588	5.9	3.4	-12.6	163.8	256.7	349.6	30.9E
JAN 28	22 29 5.9	-10-17-50.8	20.93195	20.05964	13.862	5.9	3.4	-12.4	8.3	256.6	349.6	27.0E
FEB 1	22 29 54.2	-10-13 -5.7	20.96193	20.05984	12.080	5.9	3.4	-12.1	212.9	256.6	349.6	23.2E
FEB 5	22 30 43.5	-10 -8-14.2	20.98772	20.06004	10.243	5.9	3.4	-11.9	57.5	256.5	349.7	19.3E
FEB 9	22 31 33.8	-10 -3-17.5	21.00922	20.06023	8.356	5.9	3.4	-11.7	262.1	256.5	349.7	15.5E
FEB 13	22 32 24.8	-9 58-16.8	21.02631	20.06043	6.436	5.9	3.4	-11.5	106.8	256.5	349.8	11.7E
FEB 17	22 33 16.3	-9 53-13.0	21.03895	20.06063	4.501	5.9	3.4	-11.3	311.4	256.4	349.8	7.9E
FEB 21	22 34 8.1	-9 48 -7.1	21.04711	20.06082	2.560	5.9	3.3	-11.0	156.0	256.4	349.9	4.1E
FEB 25	22 35 0.1	-9 43 -0.4	21.05079	20.06102	0.620	5.9	3.3	-10.8	0.7	256.3	349.9	0.8E
MAR 1	22 35 52.1	-9 37-53.8	21.04998	20.06121	-1.318	5.9	3.3	-10.6	205.4	256.3	349.9	3.6W
MAR 5	22 36 43.9	-9 32-47.9	21.04471	20.06140	-3.252	5.9	3.3	-10.4	50.1	256.2	350.0	7.3W
MAR 9	22 37 35.4	-9 27-44.0	21.03497	20.06160	-5.177	5.9	3.4	-10.1	254.8	256.2	350.0	11.1W
MAR 13	22 38 26.4	-9 22-43.3	21.02081	20.06179	-7.075	5.9	3.4	-9.9	99.5	256.2	350.1	14.9W
MAR 17	22 39 16.7	-9 17-46.6	21.00232	20.06198	-8.930	5.9	3.4	-9.7	304.2	256.1	350.1	18.6W
MAR 21	22 40 6.1	-9 12-55.0	20.97960	20.06217	-10.733	5.9	3.4	-9.5	148.9	256.1	350.2	22.4W
MAR 25	22 40 54.5	-9 -8 -9.8	20.95277	20.06237	-12.482	5.9	3.4	-9.3	353.7	256.0	350.2	26.1W
MAR 29	22 41 41.8	-9 -3-31.6	20.92197	20.06256	-14.175	5.9	3.4	-9.1	198.5	256.0	350.2	29.9W
APR 2	22 42 27.7	-8 59 -0.9	20.88732	20.06275	-15.814	5.9	3.4	-8.8	43.2	256.0	350.3	33.6W
APR 6	22 43 12.3	-8 54-39.2	20.84896	20.06294	-17.390	5.9	3.4	-8.7	248.0	255.9	350.3	37.4W
APR 10	22 43 55.1	-8 50-27.4	20.80704	20.06313	-18.889	5.9	3.4	-8.5	92.8	255.9	350.4	41.1W
APR 14	22 44 36.3	-8 46-26.1	20.76176	20.06332	-20.297	5.9	3.4	-8.3	297.6	255.9	350.4	44.9W
APR 18	22 45 15.6	-8 42-36.3	20.71334	20.06350	-21.608	5.9	3.4	-8.1	142.4	255.9	350.5	48.6W
APR 22	22 45 52.8	-8 38-59.1	20.66200	20.06369	-22.821	5.9	3.4	-7.9	347.2	255.8	350.5	52.3W
APR 26	22 46 27.9	-8 35-34.7	20.60798	20.06388	-23.938	5.9	3.4	-7.8	192.0	255.8	350.5	56.1W
APR 30	22 47 0.8	-8 32-23.7	20.55148	20.06407	-24.961	5.9	3.4	-7.7	36.8	255.8	350.6	59.8W
MAY 4	22 47 31.4	-8 29-27.2	20.49273	20.06426	-25.885	5.9	3.4	-7.5	241.7	255.8	350.6	63.6W
MAY 8	22 47 59.5	-8 26-45.7	20.43197	20.06444	-26.694	5.9	3.4	-7.4	86.5	255.7	350.7	67.3W
MAY 12	22 48 25.1	-8 24-19.6	20.36949	20.06463	-27.379	5.9	3.5	-7.3	291.3	255.7	350.7	71.1W
MAY 16	22 48 48.1	-8 22 -9.8	20.30557	20.06481	-27.937	5.9	3.5	-7.2	136.2	255.7	350.8	74.8W
MAY 20	22 49 8.3	-8 20-16.6	20.24050	20.06500	-28.371	5.9	3.5	-7.1	341.0	255.7	350.8	78.6W
MAY 24	22 49 25.8	-8 18-40.1	20.17458	20.06518	-28.685	5.9	3.5	-7.0	185.8	255.7	350.8	82.4W
MAY 28	22 49 40.5	-8 17-20.5	20.10806	20.06537	-28.884	5.8	3.5	-7.0	30.7	255.7	350.9	86.1W
JUN 1	22 49 52.4	-8 16-18.6	20.04122	20.06555	-28.962	5.8	3.5	-6.9	235.5	255.7	350.9	89.9W
JUN 5	22 50 1.4	-8 15-34.2	19.97435	20.06574	-28.907	5.8	3.5	-6.9	80.4	255.7	351.0	93.7W
JUN 9	22 50 7.5	-8 15 -7.4	19.90776	20.06592	-28.714	5.8	3.5	-6.8	285.2	255.7	351.0	97.5W
JUN 13	22 50 10.6	-8 14-58.6	19.84178	20.06610	-28.385	5.8	3.6	-6.8	130.0	255.7	351.1	101.3W
JUN 17	22 50 10.8	-8 15 -7.6	19.77671	20.06628	-27.925	5.8	3.6	-6.8	334.8	255.7	351.1	105.1W
JUN 21	22 50 8.2	-8 15-33.8	19.71285	20.06647	-27.342	5.8	3.6	-6.8	179.7	255.7	351.1	109.0W
JUN 25	22 50 2.7	-8 16 17.0	19.65047	20.06665	-26.644	5.8	3.6	-6.9	24.5	255.7	351.2	112.8W
JUN 29	22 49 54.4	-8 17-17.3	19.58984	20.06683	-25.827	5.8	3.6	-6.9	229.3	255.7	351.2	116.7W
JUL 3	22 49 43.3	-8 18-34.1	19.53124	20.06701	-24.882	5.8	3.6	-6.9	74.1	255.7	351.3	120.5W
JUL 7	22 49 29.6	-8 20 -6.8	19.47497	20.06719	-23.810	5.8	3.6	-7.0	278.9	255.7	351.3	124.4W
JUL 11	22 49 13.2	-8 21-55.2	19.42132	20.06737	-22.616	5.8	3.6	-7.1	123.7	255.7	351.4	128.3W
JUL 15	22 48 54.3	-8 23-58.4	19.37056	20.06755	-21.311	5.8	3.6	-7.2	328.4	255.7	351.4	132.2W
JUL 19	22 48 33.1	-8 26-15.1	19.32292	20.06773	-19.908	5.8	3.6	-7.3	173.2	255.7	351.4	136.1W
JUL 23	22 48 9.7	-8 28-44.6	19.27864	20.06790	-18.416	5.8	3.7	-7.4	18.0	255.7	351.5	140.0W
JUL 27	22 47 44.1	-8 31-26.5	19.23790	20.06808	-16.834	5.7	3.7	-7.5	222.7	255.8	351.5	144.0W
JUL 31	22 47 16.6	-8 34-19.3	19.20093	20.06826	-15.158	5.7	3.7	-7.6	67.4	255.8	351.6	147.9W
AUG 4	22 46 47.4	-8 37-22.1	19.16793	20.06844	-13.394	5.7	3.7	-7.7	272.1	255.8	351.6	151.9W
AUG 8	22 46 16.5	-8 40-33.9	19.13909	20.06861	-11.553	5.7	3.7	-7.9	116.8	255.8	351.7	155.8W
AUG 12	22 45 44.2	-8 43 53.1	19.11459	20.06879	-9.650	5.7	3.7	-8.0	321.5	255.8	351.7	159.8W
AUG 16	22 45 10.8	-8 47-18.2	19.09453	20.06896	-7.701	5.7	3.7	-8.2	166.2	255.9	351.7	163.8W
AUG 20	22 44 36.5	-8 50-48.2	19.07903	20.06914	-5.718	5.7	3.7	-8.3	10.9	255.9	351.8	167.8W
AUG 24	22 44 1.3	-8 54-21.7	19.06814	20.06931	-3.701	5.7	3.7	-8.5	215.5	255.9	351.8	171.8W
AUG 28	22 43 25.7	-8 57 57.2	19.06194	20.06949	-1.651	5.7	3.7	-8.6	60.2	255.9	351.9	175.8W
SEP 1	22 42 49.8	-9 -1-33.4	19.06052	20.06966	0.422	5.7	3.7	-8.8	264.8	256.0	351.9	179.2W
SEP 5	22 42 13.8	-9 -5 -9.1	19.06389	20.06984	2.503	5.7	3.7	-8.9	109.4	256.0	352.0	176.0E
SEP 9	22 41 38.0	-9 -8-42.4	19.07207	20.07001	4.576	5.7	3.7	-9.1	314.0	256.0	352.0	172.0E
SEP 13	22 41 2.7	-9 12-11.7	19.08501	20.07018	6.623	5.7	3.7	-9.2	158.6	256.1	352.0	168.0E
SEP 17	22 40 28.1	-9 15 35.9	19.10264	20.07035	8.631	5.7	3.7	-9.4	3.1	256.1	352.1	163.9E
SEP 21	22 39 54.4	-9 18-53.9	19.12486	20.07052	10.602	5.7	3.7	-9.5	207.7	256.1	352.1	159.9E
SEP 25	22 39 21.8	-9 22 -3.8	19.15159	20.07069	12.533	5.7	3.7	-9.7	52.2	256.1	352.2	155.8E
SEP 29	22 38 50.6	-9 25 -5.0	19.18272	20.07086	14.413	5.7	3.7	-9.8	256.8	256.2	352.2	151.8E
OCT 3	22 38 20.9	-9 27-56.1	19.21812	20.07103	16.227	5.7	3.7	-10.0	101.3	256.2	352.3	147.7E
OCT 7	22 37 53.0	-9 30-35.5	19.25762	20.07120	17.958	5.8	3.7	-10.1	305.8	256.2	352.3	143.6E
OCT 11	22 37 27.2	-9 33 -2.2	19.30102	20.07137	19.592	5.8	3.7	-10.2	150.3	256.2	352.3	139.6E
OCT 15	22 37 3.5	-9 35-15.5	19.34806	20.07154	21.122	5.8	3.6	-10.3	354.8	256.2	352.4	135.5E
OCT 19	22 36 42.1	-9 37-14.5	19.39852	20.07171	22.549	5.8	3.6	-10.4	199.3	256.3	352.4	131.5E
OCT 23	22 36 23.2	-9 38-58.1	19.45217	20.07188	23.875	5.8	3.6	-10.5	43.7	256.3	352.5	127.4E
OCT 27	22 36 6.9	-9 40-25.9	19.50875	20.07204	25.091	5.8	3.6	-10.5	248.2	256.3	352.5	123.3E
OCT 31	22 35 53.2	-9 41-37.5	19.56800	20.07221	26.184	5.8	3.6	-10.6	92.7	256.3	352.6	119.3E
NOV 4	22 35 42.5	-9 42-31.6	19.62962	20.07238	27.142	5.8	3.6	-10.6	297.1	256.3	352.6	115.2E
NOV 8	22 35 34.7	-9 43 -7.9	19.69329	20.07254	27.956	5.8	3.6	-10.7	141.6	256.3	352.6	111.2E
NOV 12	22 35 29.9	-9 43-26.6	19.75868	20.07271	28.626	5.8	3.6	-10.7	346.0	256.3	352.7	107.1E
NOV 16	22 35 28.1	-9 43 27.0	19.82545	20.07287	29.160	5.8	3.6	-10.7	190.5	256.3	352.7	103.1E
NOV 20	22 35 29.4	-9 43 -9.1	19.89330	20.07303	29.561	5.8	3.5	-10.7	34.9	256.3	352.8	99.1E
NOV 24	22 35 33.8	-9 42 33.2	19.96192	20.07320	29.824	5.8	3.5	-10.7	239.4	256.3	352.8	95.1E
NOV 28	22 35 41.2	-9 41-39.1	20.03099	20.07336	29.944	5.8	3.5	-10.6	83.8	256.3	352.9	91.1E
DEC 2	22 35 51.8	-9 40-26.5	20.10016	20.07352	29.914	5.8	3.5	-10.6	288.3	256.3	352.9	87.1E
DEC 6	22 36 5.4	-										

Date (0 DT)	RA [Mean]			Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
(h m s)	(d ' ")													
JAN 3	22 39 0.6	-9-20-32.3	20.61776	20.07481	24.716	5.9	3.4	-9.8	124.0	256.1	353.2	55.3E		
JAN 7	22 39 35.9	-9-16-54.4	20.67348	20.07496	23.502	5.9	3.4	-9.6	328.5	256.1	353.3	51.4E		
JAN 11	22 40 13.4	-9-13-3.4	20.72628	20.07512	22.192	5.9	3.4	-9.4	173.1	256.1	353.3	47.5E		
JAN 15	22 40 52.9	-9-9-0.3	20.77595	20.07528	20.794	5.9	3.4	-9.3	17.6	256.1	353.4	43.6E		
JAN 19	22 41 34.4	-9-4-46.2	20.82229	20.07544	19.310	5.9	3.4	-9.1	222.1	256.0	353.4	39.7E		
JAN 23	22 42 17.5	-9-0-21.7	20.86511	20.07559	17.743	5.9	3.4	-8.9	66.7	256.0	353.5	35.9E		
JAN 27	22 43 2.4	-8-55-47.5	20.90422	20.07575	16.094	5.9	3.4	-8.7	271.2	256.0	353.5	32.0E		
JAN 31	22 43 48.6	-8-51-4.8	20.93942	20.07590	14.368	5.9	3.4	-8.5	115.8	255.9	353.5	28.1E		
FEB 4	22 44 36.1	-8-46-14.7	20.97056	20.07606	12.582	5.9	3.4	-8.3	320.4	255.9	353.6	24.3E		
FEB 8	22 45 24.7	-8-41-18.0	20.99753	20.07621	10.755	5.9	3.4	-8.1	165.0	255.8	353.6	20.4E		
FEB 12	22 46 14.3	-8-36-16.0	21.02024	20.07637	8.896	5.9	3.4	-7.9	9.6	255.8	353.7	16.6E		
FEB 16	22 47 4.5	-8-31-9.9	21.03861	20.07652	7.007	5.9	3.4	-7.6	214.2	255.8	353.7	12.8E		
FEB 20	22 47 55.3	-8-26-0.2	21.05260	20.07668	5.092	5.9	3.3	-7.4	58.8	255.7	353.8	9.0E		
FEB 24	22 48 46.6	-8-20-47.9	21.06212	20.07683	3.153	5.9	3.3	-7.2	263.5	255.7	353.8	5.2E		
FEB 28	22 49 38.1	-8-15-34.3	21.06715	20.07698	1.196	5.9	3.3	-7.0	108.1	255.7	353.8	1.6E		
MAR 4	22 50 29.6	-8-10-20.7	21.06766	20.07713	-0.759	5.9	3.3	-6.7	312.8	255.6	353.9	2.5W		
MAR 8	22 51 21.0	-8-5-7.6	21.06367	20.07728	-2.696	5.9	3.3	-6.5	157.5	255.6	353.9	6.2W		
MAR 12	22 52 12.2	-7-59-56.7	21.05523	20.07744	-4.607	5.9	3.3	-6.3	2.2	255.6	354.0	10.0W		
MAR 16	22 53 2.8	-7-54-48.8	21.04241	20.07759	-6.490	5.9	3.3	-6.0	206.9	255.5	354.0	13.7W		
MAR 20	22 53 52.8	-7-49-44.8	21.02527	20.07774	-8.343	5.9	3.4	-5.8	51.6	255.5	354.1	17.5W		
MAR 24	22 54 42.1	-7-44-45.4	21.00389	20.07789	-10.165	5.9	3.4	-5.6	256.3	255.5	354.1	21.2W		
MAR 28	22 55 30.5	-7-39-52.0	20.97834	20.07804	-11.947	5.9	3.4	-5.4	101.1	255.4	354.1	25.0W		
APR 1	22 56 17.7	-7-35-5.6	20.94874	20.07819	-13.673	5.9	3.4	-5.2	305.8	255.4	354.2	28.7W		
APR 5	22 57 3.7	-7-30-26.9	20.91523	20.07833	-15.327	5.9	3.4	-5.0	150.6	255.4	354.2	32.5W		
APR 9	22 57 48.2	-7-25-57.3	20.87798	20.07848	-16.905	5.9	3.4	-4.8	355.4	255.4	354.3	36.2W		
APR 13	22 58 31.2	-7-21-37.6	20.83718	20.07863	-18.406	5.9	3.4	-4.6	200.2	255.3	354.3	39.9W		
APR 17	22 59 12.6	-7-17-28.2	20.79300	20.07878	-19.831	5.9	3.4	-4.4	44.9	255.3	354.4	43.7W		
APR 21	22 59 52.1	-7-13-30.0	20.74562	20.07892	-21.178	5.9	3.4	-4.2	249.7	255.3	354.4	47.4W		
APR 25	23 0 29.7	-7-9-44.2	20.69522	20.07907	-22.442	5.9	3.4	-4.1	94.6	255.3	354.4	51.1W		
APR 29	23 1 5.3	-7-6-11.4	20.64201	20.07921	-23.605	5.9	3.4	-3.9	299.4	255.2	354.5	54.9W		
MAY 3	23 1 38.7	-7-2-52.2	20.58624	20.07936	-24.657	5.9	3.4	-3.8	144.2	255.2	354.5	58.6W		
MAY 7	23 2 9.7	-6-59-47.7	20.52818	20.07950	-25.595	5.9	3.4	-3.6	349.0	255.2	354.6	62.3W		
MAY 11	23 2 38.3	-6-56-58.4	20.46807	20.07965	-26.422	5.9	3.4	-3.5	193.8	255.2	354.6	66.1W		
MAY 15	23 3 4.5	-6-54-24.4	20.40618	20.07979	-27.140	5.9	3.5	-3.4	38.7	255.2	354.7	69.8W		
MAY 19	23 3 28.2	-6-52-6.4	20.34276	20.07993	-27.751	5.9	3.5	-3.3	243.5	255.2	354.7	73.6W		
MAY 23	23 3 49.2	-6-50-5.2	20.27805	20.08008	-28.248	5.9	3.5	-3.2	88.3	255.2	354.7	77.3W		
MAY 27	23 4 7.5	-6-48-21.0	20.21234	20.08022	-28.617	5.9	3.5	-3.1	293.2	255.2	354.8	81.1W		
MAY 31	23 4 23.0	-6-46-54.0	20.14593	20.08036	-28.851	5.9	3.5	-3.0	138.0	255.1	354.8	84.8W		
JUN 4	23 4 35.7	-6-45-45.1	20.07914	20.08050	-28.952	5.8	3.5	-3.0	342.9	255.1	354.9	88.6W		
JUN 8	23 4 45.5	-6-44-54.0	20.01226	20.08064	-28.925	5.8	3.5	-2.9	187.7	255.1	354.9	92.4W		
JUN 12	23 4 52.5	-6-44-20.6	19.94559	20.08078	-28.775	5.8	3.5	-2.9	32.5	255.1	355.0	96.2W		
JUN 16	23 4 56.6	-6-44-5.0	19.87940	20.08092	-28.506	5.8	3.5	-2.9	237.4	255.1	355.0	100.0W		
JUN 20	23 4 57.8	-6-44-7.7	19.81397	20.08106	-28.113	5.8	3.6	-2.9	82.2	255.1	355.0	103.8W		
JUN 24	23 4 56.2	-6-44-28.0	19.74961	20.08120	-27.585	5.8	3.6	-2.9	287.0	255.1	355.1	107.6W		
JUN 28	23 4 51.7	-6-45-6.1	19.68662	20.08134	-26.920	5.8	3.6	-2.9	131.8	255.1	355.1	111.5W		
JUL 2	23 4 44.3	-6-46-1.8	19.62533	20.08148	-26.125	5.8	3.6	-3.0	336.6	255.1	355.2	115.3W		
JUL 6	23 4 34.2	-6-47-14.4	19.56601	20.08161	-25.207	5.8	3.6	-3.0	181.5	255.1	355.2	119.2W		
JUL 10	23 4 21.4	-6-48-43.1	19.50895	20.08175	-24.176	5.8	3.6	-3.1	26.2	255.1	355.3	123.1W		
JUL 14	23 4 6.1	-6-50-27.7	19.45438	20.08188	-23.040	5.8	3.6	-3.1	231.0	255.2	355.3	126.9W		
JUL 18	23 3 48.2	-6-52-27.7	19.40257	20.08202	-21.794	5.8	3.6	-3.2	75.8	255.2	355.3	130.8W		
JUL 22	23 3 27.9	-6-54-41.9	19.35377	20.08216	-20.432	5.8	3.6	-3.3	280.6	255.2	355.4	134.7W		
JUL 26	23 3 5.3	-6-57-9.9	19.30825	20.08229	-18.960	5.8	3.7	-3.4	125.3	255.2	355.4	138.7W		
JUL 30	23 2 40.6	-6-59-50.9	19.26625	20.08242	-17.386	5.8	3.7	-3.5	330.1	255.2	355.5	142.6W		
AUG 3	23 2 13.9	-7-2-43.4	19.22798	20.08256	-15.725	5.7	3.7	-3.6	174.8	255.2	355.5	146.6W		
AUG 7	23 1 45.4	-7-5-46.1	19.19364	20.08269	-13.990	5.7	3.7	-3.8	19.5	255.2	355.6	150.5W		
AUG 11	23 1 15.3	-7-8-58.1	19.16338	20.08282	-12.191	5.7	3.7	-3.9	224.2	255.2	355.6	154.5W		
AUG 15	23 0 43.7	-7-12-18.5	19.13736	20.08295	-10.326	5.7	3.7	-4.0	68.9	255.3	355.6	158.5W		
AUG 19	23 0 10.9	-7-15-45.5	19.11572	20.08309	-8.394	5.7	3.7	-4.2	273.6	255.3	355.7	162.4W		
AUG 23	22 59 37.0	-7-19-18.2	19.09862	20.08322	-6.405	5.7	3.7	-4.3	118.3	255.3	355.7	166.4W		
AUG 27	22 59 2.3	-7-22-55.2	19.08616	20.08335	-4.374	5.7	3.7	-4.5	322.9	255.3	355.8	170.4W		
AUG 31	22 58 27.0	-7-26-34.6	19.07842	20.08348	-2.319	5.7	3.7	-4.6	167.6	255.3	355.8	174.4W		
SEP 4	22 57 51.4	-7-30-14.9	19.07544	20.08361	-0.253	5.7	3.7	-4.8	12.2	255.4	355.9	178.3W		
SEP 8	22 57 15.7	-7-33-55.1	19.07724	20.08373	1.811	5.7	3.7	-5.0	216.8	255.4	355.9	173.3E		
SEP 12	22 56 40.1	-7-37-33.5	19.08380	20.08386	3.873	5.7	3.7	-5.1	61.4	255.4	355.9	173.3E		
SEP 16	22 56 4.9	-7-41-8.5	19.09513	20.08399	5.932	5.7	3.7	-5.3	266.0	255.4	356.0	169.3E		
SEP 20	22 55 30.2	-7-44-39.2	19.11119	20.08412	7.974	5.7	3.7	-5.4	110.6	255.5	356.0	165.3E		
SEP 24	22 54 56.3	-7-48-3.9	19.13194	20.08425	9.983	5.7	3.7	-5.6	315.1	255.5	356.1	161.2E		
SEP 28	22 54 23.6	-7-51-21.0	19.15727	20.08437	11.941	5.7	3.7	-5.7	159.7	255.5	356.1	157.1E		
OCT 2	22 53 52.1	-7-54-28.9	19.18706	20.08450	13.834	5.7	3.7	-5.9	4.2	255.5	356.2	153.1E		
OCT 6	22 53 22.2	-7-57-27.0	19.22113	20.08462	15.653	5.7	3.7	-6.0	208.7	255.5	356.2	149.0E		
OCT 10	22 52 53.9	-8-0-13.7	19.25932	20.08475	17.399	5.8	3.7	-6.1	53.3	255.6	356.2	144.9E		
OCT 14	22 52 27.6	-8-2-47.9	19.30146	20.08487	19.071	5.8	3.7	-6.2	257.8	255.6	356.3	140.9E		
OCT 18	22 52 3.3	-8-5-9.0	19.34736	20.08500	20.656	5.8	3.6	-6.3	102.3	255.6	356.3	136.8E		
OCT 22	22 51 41.3	-8-7-15.7	19.39681	20.08512	22.138	5.8	3.6	-6.4	306.7	255.6	356.4	132.7E		
OCT 26	22 51 21.7	-8-9-6.8	19.44956	20.08524	23.505	5.8	3.6	-6.5	151.2	255.6	356.4	128.6E		
OCT 30	22 51 4.7	-8-10-41.7	19.50531	20.08537	24.745	5.8	3.6	-6.6	355.7	255.6	356.5	124.6E		
NOV 3	22 50 50.4	-8-11-59.9	19.56379	20.08549	25.857	5.8	3.6	-6.6	200.2	255.6	356.5	120.5E		
NOV 7	22 50 38.8	-8-13-0.7	19.62468	20.08561	26.844	5.8	3.6	-6.7	44.6	255.6	356.5	116.4E		
NOV 11	22 50 30.2	-8-13-43.7	19.68772	20.08573	27.710	5.8	3.6	-6.7	249.1	255.6	356.6	112.4E		
NOV 15	22 50 24.4	-8-14-8.7	19.75261	20.08585	28.444	5.8	3.6	-6.8	93.5					

Date (0 DT)	RA (h m s)	[Mean] (d ° ')	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	19 37 5.4	-21 0-17.0	31.13285	30.17335	6.450	8.0	2.2	-25.9	56.6	4.1	246.9	12.5E	
JAN 5	19 37 43.5	-20-58-51.9	31.14544	30.17346	4.444	8.0	2.2	-25.9	41.7	4.0	246.9	8.6E	
JAN 9	19 38 21.8	-20-57-25.2	31.15338	30.17338	2.426	8.0	2.2	-25.9	26.8	3.9	247.0	4.7E	
JAN 13	19 39 0.2	-20-55-57.1	31.15665	30.17330	0.405	8.0	2.2	-26.0	11.8	3.7	247.0	0.9E	
JAN 17	19 39 38.7	-20 54 28.2	31.15526	30.17321	-1.611	8.0	2.2	-26.0	356.9	3.6	247.0	3.3W	
JAN 21	19 40 17.1	-20-52-58.8	31.14922	30.17313	-3.618	8.0	2.2	-26.0	342.0	3.5	247.0	7.2W	
JAN 25	19 40 55.1	-20-51-29.1	31.13856	30.17304	-5.615	8.0	2.2	-26.1	327.1	3.4	247.0	11.1W	
JAN 29	19 41 32.8	-20-49-59.3	31.12329	30.17296	-7.595	8.0	2.2	-26.1	312.3	3.2	247.1	15.0W	
FEB 2	19 42 10.0	-20-48-30.4	31.10350	30.17287	-9.540	8.0	2.2	-26.1	297.4	3.1	247.1	18.9W	
FEB 6	19 42 46.4	-20-47 -2.3	31.07926	30.17279	-11.432	8.0	2.2	-26.2	282.6	3.0	247.1	22.8W	
FEB 10	19 43 21.9	-20-45-35.3	31.05073	30.17270	-13.260	8.0	2.2	-26.2	267.8	2.9	247.1	26.7W	
FEB 14	19 43 56.6	-20-44-10.0	31.01805	30.17262	-15.021	8.0	2.2	-26.2	253.0	2.7	247.2	30.6W	
FEB 18	19 44 30.1	-20-42-46.9	30.98139	30.17253	-16.713	8.0	2.2	-26.3	238.2	2.6	247.2	34.5W	
FEB 22	19 45 2.4	-20-41-25.8	30.94089	30.17245	-18.335	8.0	2.2	-26.3	223.5	2.5	247.2	38.4W	
FEB 26	19 45 33.4	-20-40 -7.4	30.89674	30.17236	-19.880	8.0	2.2	-26.3	208.7	2.4	247.2	42.3W	
MAR 2	19 46 3.0	-20-38-52.3	30.84912	30.17228	-21.331	8.0	2.2	-26.3	194.0	2.3	247.3	46.2W	
MAR 6	19 46 31.0	-20-37-40.4	30.79827	30.17219	-22.676	8.0	2.2	-26.4	179.3	2.2	247.3	50.1W	
MAR 10	19 46 57.4	-20-36-32.2	30.74444	30.17210	-23.906	8.0	2.2	-26.4	164.6	2.1	247.3	54.0W	
MAR 14	19 47 22.0	-20-35-28.1	30.68790	30.17202	-25.020	8.0	2.2	-26.4	149.9	2.1	247.3	57.9W	
MAR 18	19 47 44.8	-20-34-28.4	30.62893	30.17193	-26.021	8.0	2.2	-26.4	135.2	2.0	247.4	61.8W	
MAR 22	19 48 5.6	-20-33-32.9	30.56776	30.17185	-26.912	8.0	2.2	-26.5	120.6	1.9	247.4	65.7W	
MAR 26	19 48 24.6	-20-32-42.3	30.50467	30.17176	-27.686	7.9	2.2	-26.5	105.9	1.8	247.4	69.6W	
MAR 30	19 48 41.5	-20-31-56.9	30.43994	30.17167	-28.330	7.9	2.2	-26.5	91.3	1.8	247.4	73.5W	
APR 3	19 48 56.2	-20-31-16.6	30.37389	30.17159	-28.835	7.9	2.2	-26.5	76.7	1.7	247.5	77.4W	
APR 7	19 49 8.9	-20-30-41.7	30.30682	30.17150	-29.199	7.9	2.3	-26.5	62.1	1.7	247.5	81.3W	
APR 11	19 49 19.4	-20-30-12.5	30.23908	30.17141	-29.425	7.9	2.3	-26.5	47.5	1.7	247.5	85.2W	
APR 15	19 49 27.6	-20-29-49.0	30.17097	30.17133	-29.519	7.9	2.3	-26.5	33.0	1.6	247.5	89.1W	
APR 19	19 49 33.7	-20-29-30.9	30.10279	30.17124	-29.487	7.9	2.3	-26.5	18.4	1.6	247.5	93.0W	
APR 23	19 49 37.5	-20-29-18.8	30.03483	30.17115	-29.327	7.9	2.3	-26.5	3.8	1.6	247.6	96.8W	
APR 27	19 49 39.1	-20-29-12.6	29.96739	30.17107	-29.028	7.9	2.3	-26.5	349.3	1.6	247.6	100.7W	
MAY 1	19 49 38.5	-20-29-12.1	29.90082	30.17098	-28.585	7.9	2.3	-26.5	334.8	1.6	247.6	104.6W	
MAY 5	19 49 35.7	-20-29-17.4	29.83542	30.17089	-28.004	7.9	2.3	-26.5	320.2	1.6	247.6	108.5W	
MAY 9	19 49 30.8	-20-29-28.6	29.77153	30.17080	-27.291	7.9	2.3	-26.5	305.7	1.6	247.7	112.4W	
MAY 13	19 49 23.7	-20-29-45.3	29.70942	30.17071	-26.456	7.9	2.3	-26.5	291.2	1.6	247.7	116.3W	
MAY 17	19 49 14.7	-20-30 -7.3	29.64937	30.17063	-25.510	7.9	2.3	-26.5	276.6	1.7	247.7	120.2W	
MAY 21	19 49 3.6	-20-30-34.7	29.59164	30.17054	-24.451	7.9	2.3	-26.5	262.1	1.7	247.7	124.1W	
MAY 25	19 48 50.6	-20-31 -7.4	29.53649	30.17045	-23.273	7.9	2.3	-26.5	247.6	1.8	247.8	128.0W	
MAY 29	19 48 35.8	-20-31-44.7	29.48420	30.17036	-21.978	7.9	2.3	-26.5	233.1	1.8	247.8	131.9W	
JUN 2	19 48 19.2	-20-32-26.8	29.43502	30.17027	-20.574	7.9	2.3	-26.5	218.6	1.9	247.8	135.8W	
JUN 6	19 48 1.0	-20-33-13.3	29.38921	30.17018	-19.072	7.9	2.3	-26.5	204.0	1.9	247.8	139.7W	
JUN 10	19 47 41.2	-20-34 -3.8	29.34696	30.17010	-17.487	7.9	2.3	-26.4	189.5	2.0	247.9	143.6W	
JUN 14	19 47 20.2	-20-34-57.7	29.30846	30.17001	-15.831	7.9	2.3	-26.4	175.0	2.1	247.9	147.5W	
JUN 18	19 46 57.8	-20-35-55.3	29.27387	30.16992	-14.104	7.9	2.3	-26.4	160.4	2.1	247.9	151.4W	
JUN 22	19 46 34.2	-20-36-55.9	29.24335	30.16983	-12.304	7.9	2.3	-26.4	145.9	2.2	247.9	155.3W	
JUN 26	19 46 9.7	-20-37-58.9	29.21707	30.16974	-10.436	7.9	2.3	-26.4	131.3	2.3	248.0	159.2W	
JUN 30	19 45 44.3	-20-39 -4.3	29.19517	30.16965	-8.513	7.9	2.3	-26.3	116.7	2.4	248.0	163.1W	
JUL 4	19 45 18.2	-20-40-11.7	29.17776	30.16956	-6.549	7.9	2.3	-26.3	102.1	2.5	248.0	167.1W	
JUL 8	19 44 51.5	-20-41-20.2	29.16492	30.16947	-4.561	7.9	2.3	-26.3	87.6	2.6	248.0	171.0W	
JUL 12	19 44 24.5	-20-42-29.7	29.15669	30.16938	-2.561	7.9	2.3	-26.3	72.9	2.7	248.1	174.9W	
JUL 16	19 43 57.3	-20-43-40.0	29.15309	30.16929	-0.550	7.9	2.3	-26.2	58.3	2.7	248.1	178.7W	
JUL 20	19 43 30.0	-20-44-50.5	29.15416	30.16920	1.473	7.9	2.3	-26.2	43.7	2.8	248.1	177.2E	
JUL 24	19 43 2.8	-20-46 -0.6	29.15990	30.16911	3.499	7.9	2.3	-26.2	29.0	2.9	248.1	173.3E	
JUL 28	19 42 35.8	-20-47-10.2	29.17031	30.16902	5.514	7.9	2.3	-26.2	14.4	3.0	248.1	169.4E	
AUG 1	19 42 9.3	-20-48-18.9	29.18535	30.16893	7.502	7.9	2.3	-26.1	359.7	3.1	248.2	165.5E	
AUG 5	19 41 43.4	-20-49-26.0	29.20493	30.16884	9.447	7.9	2.3	-26.1	345.0	3.2	248.2	161.5E	
AUG 9	19 41 18.3	-20-50-31.2	29.22895	30.16875	11.339	7.9	2.3	-26.1	330.3	3.3	248.2	157.6E	
AUG 13	19 40 54.0	-20-51-34.5	29.25728	30.16866	13.178	7.9	2.3	-26.1	315.5	3.4	248.2	153.7E	
AUG 17	19 40 30.8	-20-52-35.2	29.28979	30.16857	14.965	7.9	2.3	-26.1	300.8	3.4	248.3	149.7E	
AUG 21	19 40 8.8	-20-53-33.1	29.32637	30.16848	16.690	7.9	2.3	-26.0	286.0	3.5	248.3	145.8E	
AUG 25	19 39 48.2	-20-54-28.0	29.36685	30.16838	18.341	7.9	2.3	-26.0	271.2	3.6	248.3	141.9E	
AUG 29	19 39 28.9	-20-55-19.5	29.41104	30.16829	19.903	7.9	2.3	-26.0	256.4	3.7	248.3	137.9E	
SEP 2	19 39 11.3	-20-56 -7.0	29.45872	30.16820	21.361	7.9	2.3	-26.0	241.6	3.7	248.4	134.0E	
SEP 6	19 38 55.4	-20-56-50.7	29.50965	30.16811	22.711	7.9	2.3	-26.0	226.8	3.8	248.4	130.1E	
SEP 10	19 38 41.3	-20-57-30.4	29.56357	30.16802	23.956	7.9	2.3	-25.9	211.9	3.8	248.4	126.1E	
SEP 14	19 38 29.1	-20-58 -5.5	29.62025	30.16793	25.098	7.9	2.3	-25.9	197.1	3.9	248.4	122.2E	
SEP 18	19 38 18.8	-20-58-36.1	29.67944	30.16784	26.129	7.9	2.3	-25.9	182.2	3.9	248.5	118.2E	
SEP 22	19 38 10.6	-20-59 -2.0	29.74088	30.16774	27.039	7.9	2.3	-25.9	167.3	3.9	248.5	114.3E	
SEP 26	19 38 4.5	-20-59-23.0	29.80427	30.16765	27.818	7.9	2.3	-25.9	152.3	3.9	248.5	110.4E	
SEP 30	19 38 0.6	-20-59-38.8	29.86930	30.16756	28.455	7.9	2.3	-25.9	137.4	3.9	248.5	106.4E	
OCT 4	19 37 59.0	-20-59-49.5	29.93563	30.16747	28.951	7.9	2.3	-25.9	122.5	4.0	248.6	102.5E	
OCT 8	19 37 59.5	-20-59-55.2	30.00296	30.16737	29.314	7.9	2.3	-25.9	107.5	3.9	248.6	98.5E	
OCT 12	19 38 2.3	-20-59-55.4	30.07097	30.16728	29.549	7.9	2.3	-25.9	92.5	3.9	248.6	94.6E	
OCT 16	19 38 7.4	-20-59-50.3	30.13938	30.16719	29.650	7.9	2.3	-25.9	77.5	3.9	248.6	90.7E	
OCT 20	19 38 14.7	-20-59-40.0	30.20786	30.16709	29.614	7.9	2.3	-25.9	62.6	3.9	248.7	86.7E	
OCT 24	19 38 24.3	-20-59-24.2	30.27610	30.16700	29.432	7.9	2.3	-25.9	47.6	3.9	248.7	82.8E	
OCT 28	19 38 36.2	-20-59 -2.8	30.34373	30.16691	29.100	7.9	2.3	-25.9	32.5	3.8	248.7	78.8E	
NOV 1	19 38 50.2	-20-58-36.3	30.41044	30.16681	28.625	7.9	2.2	-25.9	17.5	3.8	248.7	74.9E	
NOV 5	19 39 6.4	-20-58 -4.6	30.47590	30.16672	28.022	7.9	2.2	-25.9	2.5	3.7	248.7	70.9E	
NOV 9	19 39 24.6	-20-57-27.6	30.53982	30.16663	27.295	8.0	2.2	-26.0	347.5	3.7	248.8	67.0E	
NOV 13	19 39 45.0	-20-56-45.5	30.60192	30.16653	26.445	8.0	2.2	-26.0	332.5	3.6	248.8	63.1E	
NOV 17	19 40 7.2	-20-55-58.6	30.66191	30.16644	25.471	8.0	2.2	-26.0	317.4	3.5	248.8	59.1E	
NOV 21	19 40 31.3	-20-55 -6.7	30.71951	30.16634	24.371	8.0	2.2	-26.0	302.4	3.4	248.8	55.2E	
NOV 25	19 40 57.3	-20-54 -9.8	30.77442	30.16625	23.145	8.0	2.2	-26.0	287.4	3.4	248.9	51.2E	
NOV 29	19 41 24.9	-20-53 -8.7	30.82636	30.16615	21.806	8.0	2.2	-26.1	272.3	3.3	248.9	47.3E	
DEC 3	19 41 54.1	-20-52 -3.2	30.8751										

Date (0 DT)	RA (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 4	19 46 30.4	-20-41-10.3	31.12669	30.16530	6.158	8.0	2.2	-26.3	137.4	2.2	249.1	11.9E
JAN 8	19 47 8.3	-20-39-37.0	31.13863	30.16520	4.170	8.0	2.2	-26.3	122.4	2.1	249.1	8.0E
JAN 12	19 47 46.4	-20-38 -2.2	31.14595	30.16510	2.161	8.0	2.2	-26.4	107.5	2.0	249.2	4.1E
JAN 16	19 48 24.7	-20-36-26.0	31.14861	30.16501	0.137	8.0	2.2	-26.4	92.6	1.8	249.2	0.5E
JAN 20	19 49 3.1	-20-34-48.9	31.14658	30.16491	-1.897	8.0	2.2	-26.4	77.6	1.7	249.2	3.8W
JAN 24	19 49 41.2	-20-33-11.6	31.13985	30.16481	-3.922	8.0	2.2	-26.5	62.7	1.6	249.2	7.7W
JAN 28	19 50 19.1	-20-31-34.2	31.12848	30.16472	-5.917	8.0	2.2	-26.5	47.9	1.5	249.3	11.7W
FEB 1	19 50 56.5	-20-29-57.0	31.11255	30.16462	-7.876	8.0	2.2	-26.5	33.0	1.3	249.3	15.6W
FEB 5	19 51 33.4	-20-28-20.7	31.09213	30.16452	-9.792	8.0	2.2	-26.6	18.2	1.2	249.3	19.5W
FEB 9	19 52 9.5	-20-26-45.6	31.06734	30.16443	-11.665	8.0	2.2	-26.6	3.3	1.1	249.3	23.4W
FEB 13	19 52 44.8	-20-25-11.7	31.03828	30.16433	-13.491	8.0	2.2	-26.6	348.5	1.0	249.3	27.3W
FEB 17	19 53 19.1	-20-23-39.8	31.00506	30.16423	-15.261	8.0	2.2	-26.6	333.7	0.8	249.4	31.2W
FEB 21	19 53 52.4	-20-22-10.4	30.96782	30.16413	-16.959	8.0	2.2	-26.7	318.9	0.7	249.4	35.1W
FEB 25	19 54 24.4	-20-20-43.5	30.92677	30.16404	-18.567	8.0	2.2	-26.7	304.2	0.6	249.4	39.0W
FEB 29	19 54 55.0	-20-19-19.6	30.88212	30.16394	-20.079	8.0	2.2	-26.7	289.4	0.5	249.4	42.9W
MAR 4	19 55 24.2	-20-17-59.4	30.83408	30.16384	-21.496	8.0	2.2	-26.7	274.7	0.4	249.5	46.8W
MAR 8	19 55 51.9	-20-16-42.8	30.78287	30.16374	-22.816	8.0	2.2	-26.8	260.0	0.3	249.5	50.7W
MAR 12	19 56 17.9	-20-15-30.2	30.72873	30.16364	-24.040	8.0	2.2	-26.8	245.3	0.2	249.5	54.6W
MAR 16	19 56 42.2	-20-14-22.0	30.67189	30.16355	-25.159	8.0	2.2	-26.8	230.6	0.1	249.5	58.5W
MAR 20	19 57 4.6	-20-13-18.7	30.61258	30.16345	-26.159	8.0	2.2	-26.8	216.0	0.1	249.6	62.4W
MAR 24	19 57 25.1	-20-12-20.3	30.55112	30.16335	-27.028	8.0	2.2	-26.8	201.3	0.0	249.6	66.2W
MAR 28	19 57 43.7	-20-11-27.1	30.48781	30.16325	-27.765	7.9	2.2	-26.9	186.7	359.9	249.6	70.1W
APR 1	19 58 0.2	-20-10-39.5	30.42294	30.16315	-28.372	7.9	2.2	-26.9	172.1	359.9	249.6	74.0W
APR 5	19 58 14.6	-20-9-57.6	30.35681	30.16305	-28.854	7.9	2.2	-26.9	157.5	359.8	249.7	77.9W
APR 9	19 58 27.0	-20-9-21.3	30.28972	30.16295	-29.213	7.9	2.3	-26.9	142.9	359.8	249.7	81.8W
APR 13	19 58 37.1	-20-8-51.2	30.22194	30.16285	-29.443	7.9	2.3	-26.9	128.3	359.8	249.7	85.7W
APR 17	19 58 45.1	-20-8-27.3	30.15379	30.16275	-29.533	7.9	2.3	-26.9	113.7	359.7	249.7	89.6W
APR 21	19 58 50.8	-20-8 -9.4	30.08560	30.16265	-29.478	7.9	2.3	-26.9	99.1	359.7	249.8	93.4W
APR 25	19 58 54.4	-20-7-57.9	30.01770	30.16255	-29.280	7.9	2.3	-26.9	84.6	359.7	249.8	97.3W
APR 29	19 58 55.7	-20-7-52.8	29.95042	30.16246	-28.947	7.9	2.3	-26.9	70.0	359.7	249.8	101.2W
MAY 3	19 58 54.8	-20-7-53.8	29.88405	30.16236	-28.486	7.9	2.3	-26.9	55.5	359.7	249.8	105.1W
MAY 7	19 58 51.8	-20-8 -0.8	29.81889	30.16226	-27.905	7.9	2.3	-26.9	41.0	359.7	249.9	109.0W
MAY 11	19 58 46.7	-20-8-14.2	29.75521	30.16215	-27.199	7.9	2.3	-26.9	26.4	359.7	249.9	112.9W
MAY 15	19 58 39.4	-20-8-33.5	29.69332	30.16205	-26.362	7.9	2.3	-26.9	11.9	359.7	249.9	116.8W
MAY 19	19 58 30.2	-20-8-58.6	29.63351	30.16195	-25.392	7.9	2.3	-26.9	357.4	359.8	249.9	120.6W
MAY 23	19 58 18.9	-20-9-29.5	29.57609	30.16185	-24.299	7.9	2.3	-26.9	342.9	359.8	249.9	124.5W
MAY 27	19 58 5.7	-20-10 -6.0	29.52132	30.16175	-23.094	7.9	2.3	-26.9	328.4	359.9	250.0	128.4W
MAY 31	19 57 50.8	-20-10-47.4	29.46946	30.16165	-21.788	7.9	2.3	-26.9	313.8	359.9	250.0	132.3W
JUN 4	19 57 34.1	-20-11-33.6	29.42072	30.16155	-20.391	7.9	2.3	-26.9	299.3	360.0	250.0	136.2W
JUN 8	19 57 15.9	-20-12-24.7	29.37531	30.16145	-18.901	7.9	2.3	-26.8	284.8	0.0	250.0	140.1W
JUN 12	19 56 56.1	-20-13-20.1	29.33346	30.16135	-17.315	7.9	2.3	-26.8	270.2	0.1	250.1	144.0W
JUN 16	19 56 34.9	-20-14-19.2	29.29538	30.16124	-15.637	7.9	2.3	-26.8	255.7	0.2	250.1	147.9W
JUN 20	19 56 12.5	-20-15-22.1	29.26126	30.16114	-13.882	7.9	2.3	-26.8	241.2	0.2	250.1	151.8W
JUN 24	19 55 48.9	-20-16-28.2	29.23128	30.16104	-12.062	7.9	2.3	-26.8	226.6	0.3	250.1	155.8W
JUN 28	19 55 24.4	-20-17-36.8	29.20557	30.16094	-10.192	7.9	2.3	-26.8	212.0	0.4	250.2	159.7W
JUL 2	19 54 59.0	-20-18-47.7	29.18421	30.16084	-8.284	7.9	2.3	-26.7	197.5	0.5	250.2	163.6W
JUL 6	19 54 33.0	-20-20 -0.7	29.16732	30.16073	-6.336	7.9	2.3	-26.7	182.9	0.6	250.2	167.5W
JUL 10	19 54 6.4	-20-21-15.1	29.15496	30.16063	-4.348	7.9	2.3	-26.7	168.3	0.7	250.2	171.4W
JUL 14	19 53 39.5	-20-22-30.4	29.14724	30.16053	-2.330	7.9	2.3	-26.7	153.7	0.8	250.3	175.3W
JUL 18	19 53 12.4	-20-23-46.4	29.14420	30.16042	-0.296	7.8	2.3	-26.6	139.1	0.9	250.3	179.1W
JUL 22	19 52 45.2	-20-25 -2.6	29.14587	30.16032	1.737	7.9	2.3	-26.6	124.4	1.0	250.3	176.8E
JUL 26	19 52 18.1	-20-26-18.2	29.15221	30.16022	3.755	7.9	2.3	-26.6	109.8	1.0	250.3	172.9E
JUL 30	19 51 51.4	-20-27-33.1	29.16319	30.16011	5.748	7.9	2.3	-26.6	95.1	1.1	250.4	168.9E
AUG 3	19 51 25.1	-20-28-47.0	29.17875	30.16001	7.715	7.9	2.3	-26.6	80.4	1.2	250.4	165.0E
AUG 7	19 50 59.3	-20-29-59.1	29.19882	30.15990	9.658	7.9	2.3	-26.5	65.7	1.3	250.4	161.1E
AUG 11	19 50 34.4	-20-31 -9.3	29.22334	30.15980	11.564	7.9	2.3	-26.5	51.0	1.4	250.4	157.1E
AUG 15	19 50 10.4	-20-32-17.1	29.25220	30.15969	13.419	7.9	2.3	-26.5	36.3	1.5	250.5	153.2E
AUG 19	19 49 47.4	-20-33-22.2	29.28528	30.15959	15.206	7.9	2.3	-26.5	21.5	1.6	250.5	149.3E
AUG 23	19 49 25.6	-20-34-23.9	29.32239	30.15948	16.914	7.9	2.3	-26.4	6.8	1.6	250.5	145.3E
AUG 27	19 49 5.2	-20-35-22.2	29.36335	30.15938	18.534	7.9	2.3	-26.4	352.0	1.7	250.5	141.4E
AUG 31	19 48 46.3	-20-36-16.9	29.40796	30.15927	20.071	7.9	2.3	-26.4	337.2	1.8	250.5	137.5E
SEP 4	19 48 28.9	-20-37 -7.3	29.45602	30.15917	21.524	7.9	2.3	-26.4	322.4	1.8	250.6	133.5E
SEP 8	19 48 13.3	-20-37-53.4	29.50733	30.15906	22.883	7.9	2.3	-26.4	307.5	1.9	250.6	129.6E
SEP 12	19 47 59.5	-20-38-35.1	29.56167	30.15896	24.135	7.9	2.3	-26.4	292.7	1.9	250.6	125.6E
SEP 16	19 47 47.5	-20-39-11.8	29.61875	30.15885	25.267	7.9	2.3	-26.4	277.8	2.0	250.6	121.7E
SEP 20	19 47 37.6	-20-39-43.3	29.67831	30.15874	26.271	7.9	2.3	-26.3	262.9	2.0	250.7	117.7E
SEP 24	19 47 29.7	-20-40 -9.8	29.74003	30.15864	27.145	7.9	2.3	-26.3	248.0	2.0	250.7	113.8E
SEP 28	19 47 23.9	-20-40-30.9	29.80363	30.15853	27.895	7.9	2.3	-26.3	233.1	2.0	250.7	109.9E
OCT 2	19 47 20.3	-20-40-46.4	29.86883	30.15842	28.524	7.9	2.3	-26.3	218.1	2.1	250.7	105.9E
OCT 6	19 47 18.9	-20-40-56.3	29.93533	30.15832	29.025	7.9	2.3	-26.3	203.2	2.1	250.8	102.0E
OCT 10	19 47 19.7	-20-41 -0.6	30.00282	30.15821	29.387	7.9	2.3	-26.3	188.2	2.1	250.8	98.0E
OCT 14	19 47 22.8	-20-40-59.0	30.07099	30.15810	29.604	7.9	2.3	-26.3	173.2	2.0	250.8	94.1E
OCT 18	19 47 28.2	-20-40-51.5	30.13949	30.15799	29.672	7.9	2.3	-26.3	158.3	2.0	250.8	90.1E
OCT 22	19 47 35.8	-20-40-38.3	30.20797	30.15789	29.594	7.9	2.3	-26.3	143.3	2.0	250.9	86.2E
OCT 26	19 47 45.7	-20-40-19.3	30.27612	30.15778	29.383	7.9	2.3	-26.3	128.3	2.0	250.9	82.2E
OCT 30	19 47 57.8	-20-39-54.3	30.34364	30.15767	29.043	7.9	2.3	-26.3	113.3	1.9	250.9	78.3E
NOV 3	19 48 12.0	-20-39-23.6	30.41021	30.15756	28.571	7.9	2.2	-26.4	98.2	1.9	250.9	74.3E
NOV 7	19 48 28.4	-20-38-47.4	30.47554	30.15746	27.962	7.9	2.2	-26.4	83.2	1.8	251.0	70.4E
NOV 11	19 48 46.9	-20-38 -5.4	30.53931	30.15735	27.214	8.0	2.2	-26.4	68.2	1.8	251.0	66.4E
NOV 15	19 49 7.4	-20-37-17.8	30.60118	30.15724	26.328	8.0	2.2	-26.4	53.2	1.7	251.0	62.5E
NOV 19	19 49 29.9	-20-36-25.0	30.66086	30.15713	25.315	8.0	2.2	-26.4	38.1	1.6	251.0	58.6E
NOV 23	19 49 54.1	-20-35-27.0	30.71806	30.15702	24.190	8.0	2.2	-26.4	23.1	1.5	251.1	54.6E
NOV 27	19 50 20.2	-20-34-23.8	30.77254	30.15691	22.960	8.0	2.2	-26.5	8.1	1.4	251.1	50.7E
DEC 1	19 50 47.9	-20-33-15.9	30.82407	30.15680	21.627	8.0	2.2	-26.5	353.0	1.4	251.1	46.7E
DEC 5	19 51 17.2	-										

Date (0 DT)	RA (h m s)	[Mean] (d ° ' ")	Dec (d ° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 2	19 55 15.9	-20-21-48.3	31.10348	30.15593	7.866	8.0	2.2	-26.7	233.0	0.4	251.3	15.2E	
JAN 6	19 55 53.3	-20-20-8.7	31.11938	30.15582	5.890	8.0	2.2	-26.7	218.1	0.3	251.3	11.3E	
JAN 10	19 56 31.1	-20-18-27.1	31.13067	30.15571	3.878	8.0	2.2	-26.7	203.1	0.2	251.3	7.4E	
JAN 14	19 57 9.2	-20-16-44.3	31.13729	30.15560	1.851	8.0	2.2	-26.8	188.2	0.1	251.4	3.5E	
JAN 18	19 57 47.3	-20-15-0.2	31.13923	30.15549	-0.174	8.0	2.2	-26.8	173.3	359.9	251.4	0.6W	
JAN 22	19 58 25.4	-20-13-15.5	31.13650	30.15537	-2.188	8.0	2.2	-26.8	158.3	359.8	251.4	4.4W	
JAN 26	19 59 3.3	-20-11-30.5	31.12914	30.15526	-4.189	8.0	2.2	-26.9	143.5	359.7	251.4	8.3W	
JAN 30	19 59 40.9	-20-9-45.7	31.11717	30.15515	-6.173	8.0	2.2	-26.9	128.6	359.5	251.5	12.2W	
FEB 3	20 0 18.1	-20-8-1.1	31.10064	30.15504	-8.134	8.0	2.2	-26.9	113.7	359.4	251.5	16.1W	
FEB 7	20 0 54.7	-20-6-17.6	31.07961	30.15493	-10.065	8.0	2.2	-26.9	98.9	359.3	251.5	20.0W	
FEB 11	20 1 30.6	-20-4-35.6	31.05418	30.15482	-11.945	8.0	2.2	-27.0	84.0	359.2	251.5	23.9W	
FEB 15	20 2 5.6	-20-2-55.2	31.02448	30.15471	-13.756	8.0	2.2	-27.0	69.2	359.0	251.6	27.9W	
FEB 19	20 2 39.6	-20-1-17.1	30.99068	30.15459	-15.496	8.0	2.2	-27.0	54.4	358.9	251.6	31.8W	
FEB 23	20 3 12.4	-19-59-41.7	30.95295	30.15448	-17.161	8.0	2.2	-27.0	39.7	358.8	251.6	35.6W	
FEB 27	20 3 44.1	-19-58-9.3	30.91146	30.15437	-18.751	8.0	2.2	-27.1	24.9	358.7	251.6	39.5W	
MAR 3	20 4 14.4	-19-56-40.1	30.86638	30.15426	-20.262	8.0	2.2	-27.1	10.2	358.6	251.7	43.4W	
MAR 7	20 4 43.3	-19-55-14.8	30.81791	30.15414	-21.685	8.0	2.2	-27.1	355.4	358.5	251.7	47.3W	
MAR 11	20 5 10.6	-19-53-53.7	30.76627	30.15403	-23.003	8.0	2.2	-27.1	340.7	358.4	251.7	51.2W	
MAR 15	20 5 36.2	-19-52-37.0	30.71172	30.15392	-24.203	8.0	2.2	-27.1	326.0	358.3	251.7	55.1W	
MAR 19	20 6 0.2	-19-51-25.2	30.65454	30.15380	-25.285	8.0	2.2	-27.2	311.4	358.2	251.7	59.0W	
MAR 23	20 6 22.2	-19-50-18.6	30.59499	30.15369	-26.250	8.0	2.2	-27.2	296.7	358.2	251.8	62.9W	
MAR 27	20 6 42.4	-19-49-17.4	30.53334	30.15358	-27.100	8.0	2.2	-27.2	282.0	358.1	251.8	66.8W	
MAR 31	20 7 0.6	-19-48-21.7	30.46987	30.15346	-27.834	7.9	2.2	-27.2	267.4	358.0	251.8	70.6W	
APR 4	20 7 16.8	-19-47-32.0	30.40484	30.15335	-28.445	7.9	2.2	-27.2	252.8	358.0	251.8	74.5W	
APR 8	20 7 30.9	-19-46-48.6	30.33855	30.15323	-28.920	7.9	2.3	-27.2	238.2	357.9	251.9	78.4W	
APR 12	20 7 42.9	-19-46-11.3	30.27133	30.15312	-29.251	7.9	2.3	-27.2	223.6	357.9	251.9	82.3W	
APR 16	20 7 52.7	-19-45-40.5	30.20351	30.15300	-29.442	7.9	2.3	-27.2	209.0	357.8	251.9	86.2W	
APR 20	20 8 0.3	-19-45-16.5	30.13540	30.15289	-29.500	7.9	2.3	-27.2	194.4	357.8	251.9	90.0W	
APR 24	20 8 5.8	-19-44-58.9	30.06730	30.15277	-29.429	7.9	2.3	-27.3	179.9	357.8	252.0	93.9W	
APR 28	20 8 9.1	-19-44-47.9	29.99952	30.15266	-29.231	7.9	2.3	-27.3	165.3	357.8	252.0	97.8W	
MAY 2	20 8 10.1	-19-44-43.8	29.93234	30.15254	-28.904	7.9	2.3	-27.3	150.8	357.8	252.0	101.7W	
MAY 6	20 8 9.0	-19-44-46.4	29.86608	30.15243	-28.436	7.9	2.3	-27.3	136.2	357.8	252.0	105.6W	
MAY 10	20 8 5.8	-19-44-55.5	29.80107	30.15231	-27.827	7.9	2.3	-27.3	121.7	357.8	252.1	109.4W	
MAY 14	20 8 0.4	-19-45-11.2	29.73761	30.15220	-27.084	7.9	2.3	-27.2	107.2	357.8	252.1	113.3W	
MAY 18	20 7 52.9	-19-45-33.4	29.67602	30.15208	-26.220	7.9	2.3	-27.2	92.7	357.8	252.1	117.2W	
MAY 22	20 7 43.4	-19-46-1.6	29.61655	30.15197	-25.241	7.9	2.3	-27.2	78.1	357.9	252.1	121.1W	
MAY 26	20 7 32.1	-19-46-35.7	29.55947	30.15185	-24.155	7.9	2.3	-27.2	63.6	357.9	252.2	125.0W	
MAY 30	20 7 18.8	-19-47-15.8	29.50503	30.15173	-22.958	7.9	2.3	-27.2	49.1	358.0	252.2	128.9W	
JUN 3	20 7 3.7	-19-48-1.4	29.45348	30.15162	-21.646	7.9	2.3	-27.2	34.6	358.0	252.2	132.8W	
JUN 7	20 6 46.9	-19-48-52.0	29.40510	30.15150	-20.223	7.9	2.3	-27.2	20.0	358.1	252.2	136.7W	
JUN 11	20 6 28.6	-19-49-47.8	29.36012	30.15138	-18.701	7.9	2.3	-27.2	5.5	358.1	252.3	140.6W	
JUN 15	20 6 8.7	-19-50-48.0	29.31875	30.15127	-17.096	7.9	2.3	-27.2	351.0	358.2	252.3	144.5W	
JUN 19	20 5 47.5	-19-51-52.2	29.28118	30.15115	-15.418	7.9	2.3	-27.2	336.4	358.3	252.3	148.4W	
JUN 23	20 5 25.1	-19-53-0.1	29.24756	30.15103	-13.675	7.9	2.3	-27.1	321.9	358.4	252.3	152.3W	
JUN 27	20 5 1.5	-19-54-11.5	29.21804	30.15091	-11.867	7.9	2.3	-27.1	307.3	358.4	252.3	156.2W	
JUL 1	20 4 37.0	-19-55-25.6	29.19277	30.15080	-9.993	7.9	2.3	-27.1	292.8	358.5	252.4	160.1W	
JUL 5	20 4 11.7	-19-56-42.2	29.17191	30.15068	-8.061	7.9	2.3	-27.1	278.2	358.6	252.4	164.0W	
JUL 9	20 3 45.7	-19-58-0.8	29.15556	30.15056	-6.088	7.9	2.3	-27.1	263.6	358.7	252.4	167.9W	
JUL 13	20 3 19.2	-19-59-20.9	29.14379	30.15044	-4.090	7.8	2.3	-27.0	249.0	358.8	252.4	171.8W	
JUL 17	20 2 52.4	-20-0-41.8	29.13666	30.15033	-2.080	7.8	2.3	-27.0	234.4	358.9	252.5	175.8W	
JUL 21	20 2 25.4	-20-2-3.3	29.13418	30.15021	-0.066	7.8	2.3	-27.0	219.8	359.0	252.5	179.5W	
JUL 25	20 1 58.3	-20-3-24.9	29.13635	30.15009	1.952	7.8	2.3	-27.0	205.2	359.1	252.5	176.3E	
JUL 29	20 1 31.4	-20-4-46.0	29.14320	30.14997	3.973	7.8	2.3	-27.0	190.5	359.2	252.5	172.4E	
AUG 2	20 1 4.8	-20-6-6.2	29.15470	30.14985	5.985	7.8	2.3	-26.9	175.9	359.2	252.6	168.5E	
AUG 6	20 0 38.7	-20-7-25.2	29.17082	30.14973	7.970	7.9	2.3	-26.9	161.2	359.3	252.6	164.6E	
AUG 10	20 0 13.1	-20-8-42.3	29.19148	30.14961	9.913	7.9	2.3	-26.9	146.5	359.4	252.6	160.6E	
AUG 14	19 59 48.4	-20-9-56.9	29.21657	30.14949	11.801	7.9	2.3	-26.9	131.7	359.5	252.6	156.7E	
AUG 18	19 59 24.7	-20-11-9.0	29.24596	30.14937	13.629	7.9	2.3	-26.9	117.0	359.6	252.7	152.8E	
AUG 22	19 59 1.9	-20-12-18.1	29.27950	30.14925	15.397	7.9	2.3	-26.8	102.3	359.7	252.7	148.8E	
AUG 26	19 58 40.4	-20-13-23.6	29.31705	30.14913	17.105	7.9	2.3	-26.8	87.5	359.7	252.7	144.9E	
AUG 30	19 58 20.3	-20-14-25.4	29.35847	30.14901	18.739	7.9	2.3	-26.8	72.7	359.8	252.7	140.9E	
SEP 3	19 58 1.6	-20-15-23.1	29.40356	30.14889	20.284	7.9	2.3	-26.8	57.9	359.9	252.8	137.0E	
SEP 7	19 57 44.5	-20-16-16.3	29.45210	30.14877	21.727	7.9	2.3	-26.8	43.1	359.9	252.8	133.0E	
SEP 11	19 57 29.1	-20-17-4.5	29.50386	30.14865	23.059	7.9	2.3	-26.8	28.2	360.0	252.8	129.1E	
SEP 15	19 57 15.6	-20-17-47.9	29.55855	30.14853	24.277	7.9	2.3	-26.8	13.4	0.0	252.8	125.1E	
SEP 19	19 57 4.0	-20-18-26.0	29.61594	30.14841	25.387	7.9	2.3	-26.7	358.5	0.1	252.9	121.2E	
SEP 23	19 56 54.3	-20-18-58.5	29.67576	30.14829	26.388	7.9	2.3	-26.7	343.6	0.1	252.9	117.2E	
SEP 27	19 56 46.7	-20-19-25.4	29.73777	30.14817	27.269	7.9	2.3	-26.7	328.7	0.1	252.9	113.3E	
OCT 1	19 56 41.2	-20-19-46.5	29.80165	30.14805	28.018	7.9	2.3	-26.7	313.8	0.2	252.9	109.3E	
OCT 5	19 56 37.9	-20-20-1.5	29.86711	30.14792	28.628	7.9	2.3	-26.7	298.8	0.2	252.9	105.4E	
OCT 9	19 56 36.8	-20-20-10.3	29.93381	30.14780	29.093	7.9	2.3	-26.7	283.9	0.2	253.0	101.4E	
OCT 13	19 56 37.9	-20-20-13.1	30.00142	30.14768	29.417	7.9	2.3	-26.7	268.9	0.2	253.0	97.5E	
OCT 17	19 56 41.3	-20-20-9.6	30.06963	30.14756	29.609	7.9	2.3	-26.7	253.9	0.2	253.0	93.5E	
OCT 21	19 56 46.9	-20-19-59.7	30.13813	30.14743	29.672	7.9	2.3	-26.7	239.0	0.1	253.0	89.6E	
OCT 25	19 56 54.8	-20-19-43.6	30.20662	30.14731	29.598	7.9	2.3	-26.7	224.0	0.1	253.1	85.6E	
OCT 29	19 57 4.9	-20-19-21.3	30.27477	30.14719	29.380	7.9	2.3	-26.7	209.0	0.1	253.1	81.7E	
NOV 2	19 57 17.2	-20-18-52.6	30.34225	30.14707	29.014	7.9	2.3	-26.7	194.0	0.0	253.1	77.7E	
NOV 6	19 57 31.7	-20-18-17.6	30.40872	30.14694	28.504	7.9	2.2	-26.7	178.9	360.0	253.1	73.8E	
NOV 10	19 57 48.4	-20-17-36.6	30.47385	30.14682	27.857	7.9	2.2	-26.8	163.9	359.9	253.2	69.8E	
NOV 14	19 58 7.0	-20-16-49.6	30.53733	30.14670	27.085	8.0	2.2	-26.8	148.9	359.9	253.2	65.9E	
NOV 18	19 58 27.7	-20-15-56.7	30.59890	30.14657	26.197	8.0	2.2	-26.8	133.9	359.8	253.2	61.9E	
NOV 22	19 58 50.3	-20-14-58.2	30.65828	30.14645	25.187	8.0	2.2	-26.8	118.8	359.7	253.2	58.0E	
NOV 26	19 59 14.7	-20-13-54.1	30.71519	30.14632	24.054	8.0	2.2	-26.8	103.8	359.6	253.3	54.0E	
NOV 30	19 59 40.8	-20-12-44.5	30.76933	30.14620	22.800	8.0	2.2	-26.8	88.8				

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	20 3 59.9	-20 0-47.4	31.07559	30.14520	9.518	8.0	2.2	-27.0	328.7	358.6	253.5	18.6E	
JAN 5	20 4 36.7	-19-59-2.3	31.09533	30.14508	7.564	8.0	2.2	-27.0	313.7	358.5	253.5	14.7E	
JAN 9	20 5 13.9	-19-57-14.9	31.11053	30.14495	5.586	8.0	2.2	-27.1	298.7	358.4	253.5	10.7E	
JAN 13	20 5 51.6	-19-55-25.6	31.12114	30.14482	3.592	8.0	2.2	-27.1	283.8	358.3	253.5	6.8E	
JAN 17	20 6 29.4	-19-53-35.0	31.12712	30.14470	1.583	8.0	2.2	-27.1	268.9	358.1	253.6	2.9E	
JAN 21	20 7 7.3	-19-51-43.3	31.12845	30.14457	-0.438	8.0	2.2	-27.1	253.9	358.0	253.6	1.1W	
JAN 25	20 7 45.2	-19-49-50.9	31.12510	30.14445	-2.463	8.0	2.2	-27.2	239.0	357.9	253.6	5.0W	
JAN 29	20 8 23.0	-19-47-58.4	31.11708	30.14432	-4.481	8.0	2.2	-27.2	224.1	357.7	253.6	8.9W	
FEB 2	20 9 0.3	-19-46-6.3	31.10442	30.14420	-6.473	8.0	2.2	-27.2	209.3	357.6	253.7	12.8W	
FEB 6	20 9 37.2	-19-44-14.7	31.08721	30.14407	-8.422	8.0	2.2	-27.2	194.4	357.5	253.7	16.7W	
FEB 10	20 10 13.5	-19-42-24.4	31.06555	30.14394	-10.323	8.0	2.2	-27.3	179.6	357.4	253.7	20.6W	
FEB 14	20 10 49.1	-19-40-35.9	31.03956	30.14382	-12.176	8.0	2.2	-27.3	164.7	357.2	253.7	24.5W	
FEB 18	20 11 23.7	-19-38-49.3	31.00934	30.14369	-13.977	8.0	2.2	-27.3	149.9	357.1	253.8	28.4W	
FEB 22	20 11 57.4	-19-37-5.0	30.97503	30.14356	-15.720	8.0	2.2	-27.3	135.1	357.0	253.8	32.3W	
FEB 26	20 12 30.0	-19-35-23.8	30.93677	30.14344	-17.394	8.0	2.2	-27.4	120.4	356.9	253.8	36.2W	
MAR 2	20 13 1.3	-19-33-46.1	30.89474	30.14331	-18.981	8.0	2.2	-27.4	105.6	356.8	253.8	40.1W	
MAR 6	20 13 31.3	-19-32-11.9	30.84915	30.14318	-20.468	8.0	2.2	-27.4	90.9	356.7	253.9	44.0W	
MAR 10	20 13 59.8	-19-30-41.9	30.80025	30.14305	-21.854	8.0	2.2	-27.4	76.1	356.6	253.9	47.9W	
MAR 14	20 14 26.7	-19-29-16.7	30.74826	30.14293	-23.140	8.0	2.2	-27.4	61.4	356.5	253.9	51.7W	
MAR 18	20 14 52.0	-19-27-56.1	30.69341	30.14280	-24.326	8.0	2.2	-27.5	46.7	356.4	253.9	55.6W	
MAR 22	20 15 15.5	-19-26-40.7	30.63595	30.14267	-25.408	8.0	2.2	-27.5	32.1	356.3	254.0	59.5W	
MAR 26	20 15 37.3	-19-25-31.0	30.57611	30.14254	-26.377	8.0	2.2	-27.5	17.4	356.2	254.0	63.4W	
MAR 30	20 15 57.1	-19-24-27.1	30.51418	30.14242	-27.218	7.9	2.2	-27.5	2.8	356.2	254.0	67.3W	
APR 3	20 16 14.9	-19-23-29.2	30.45046	30.14229	-27.921	7.9	2.2	-27.5	348.1	356.1	254.0	71.1W	
APR 7	20 16 30.8	-19-22-37.9	30.38527	30.14216	-28.493	7.9	2.2	-27.5	333.5	356.1	254.1	75.0W	
APR 11	20 16 44.5	-19-21-53.2	30.31891	30.14203	-28.937	7.9	2.3	-27.5	318.9	356.0	254.1	78.9W	
APR 15	20 16 56.1	-19-21-15.0	30.25167	30.14190	-29.255	7.9	2.3	-27.5	304.3	356.0	254.1	82.8W	
APR 19	20 17 5.7	-19-20-43.7	30.18384	30.14178	-29.448	7.9	2.3	-27.5	289.7	355.9	254.1	86.6W	
APR 23	20 17 13.0	-19-20-19.5	30.11572	30.14165	-29.508	7.9	2.3	-27.5	275.2	355.9	254.1	90.5W	
APR 27	20 17 18.2	-19-20-2.4	30.04761	30.14152	-29.425	7.9	2.3	-27.5	260.6	355.9	254.2	94.4W	
MAY 1	20 17 21.2	-19-19-52.2	29.97987	30.14139	-29.196	7.9	2.3	-27.5	246.0	355.9	254.2	98.3W	
MAY 5	20 17 22.0	-19-19-49.4	29.91282	30.14126	-28.830	7.9	2.3	-27.5	231.5	355.9	254.2	102.1W	
MAY 9	20 17 20.6	-19-19-53.7	29.84676	30.14113	-28.336	7.9	2.3	-27.5	217.0	355.9	254.2	106.0W	
MAY 13	20 17 17.1	-19-20-4.8	29.78199	30.14100	-27.720	7.9	2.3	-27.5	202.4	355.9	254.3	109.9W	
MAY 17	20 17 11.5	-19-20-22.8	29.71878	30.14087	-26.983	7.9	2.3	-27.5	187.9	355.9	254.3	113.8W	
MAY 21	20 17 3.9	-19-20-47.7	29.65741	30.14074	-26.122	7.9	2.3	-27.5	173.4	355.9	254.3	117.7W	
MAY 25	20 16 54.2	-19-21-19.1	29.59818	30.14061	-25.133	7.9	2.3	-27.5	158.9	356.0	254.3	121.5W	
MAY 29	20 16 42.7	-19-21-56.7	29.54138	30.14048	-24.016	7.9	2.3	-27.5	144.3	356.0	254.4	125.4W	
JUN 2	20 16 29.2	-19-22-40.6	29.48730	30.14035	-22.785	7.9	2.3	-27.5	129.8	356.1	254.4	129.3W	
JUN 6	20 16 14.0	-19-23-30.3	29.43618	30.14022	-21.454	7.9	2.3	-27.5	115.3	356.1	254.4	133.2W	
JUN 10	20 15 57.1	-19-24-25.3	29.38824	30.14009	-20.031	7.9	2.3	-27.5	100.8	356.2	254.4	137.1W	
JUN 14	20 15 38.7	-19-25-25.4	29.34369	30.13996	-18.520	7.9	2.3	-27.5	86.2	356.2	254.5	141.0W	
JUN 18	20 15 18.8	-19-26-30.4	29.30273	30.13983	-16.922	7.9	2.3	-27.5	71.7	356.3	254.5	144.9W	
JUN 22	20 14 57.5	-19-27-39.6	29.26557	30.13970	-15.234	7.9	2.3	-27.5	57.2	356.4	254.5	148.8W	
JUN 26	20 14 35.1	-19-28-52.7	29.23241	30.13956	-13.463	7.9	2.3	-27.4	42.6	356.5	254.5	152.7W	
JUN 30	20 14 11.5	-19-30-9.4	29.20341	30.13943	-11.628	7.9	2.3	-27.4	28.1	356.5	254.6	156.6W	
JUL 4	20 13 47.0	-19-31-29.0	29.17871	30.13930	-9.744	7.9	2.3	-27.4	13.5	356.6	254.6	160.5W	
JUL 8	20 13 21.8	-19-32-50.9	29.15842	30.13917	-7.821	7.8	2.3	-27.4	358.9	356.7	254.6	164.5W	
JUL 12	20 12 55.9	-19-34-15.0	29.14260	30.13904	-5.865	7.8	2.3	-27.4	344.4	356.8	254.6	168.4W	
JUL 16	20 12 29.5	-19-35-40.6	29.13134	30.13891	-3.877	7.8	2.3	-27.4	329.8	356.9	254.7	172.3W	
JUL 20	20 12 2.7	-19-37-7.0	29.12471	30.13877	-1.858	7.8	2.3	-27.3	315.1	357.0	254.7	176.2W	
JUL 24	20 11 35.9	-19-38-33.9	29.12276	30.13864	0.179	7.8	2.3	-27.3	300.5	357.1	254.7	179.6E	
JUL 28	20 11 8.9	-19-40-1.0	29.12553	30.13851	2.216	7.8	2.3	-27.3	285.9	357.2	254.7	175.9E	
AUG 1	20 10 42.2	-19-41-27.3	29.13298	30.13838	4.237	7.8	2.3	-27.3	271.2	357.3	254.7	172.0E	
AUG 5	20 10 15.8	-19-42-52.5	29.14508	30.13824	6.231	7.8	2.3	-27.3	256.6	357.4	254.8	168.0E	
AUG 9	20 9 49.8	-19-44-16.3	29.16174	30.13811	8.193	7.8	2.3	-27.2	241.9	357.4	254.8	164.1E	
AUG 13	20 9 24.5	-19-45-38.1	29.18290	30.13798	10.122	7.9	2.3	-27.2	227.2	357.5	254.8	160.2E	
AUG 17	20 8 60.0	-19-46-57.2	29.20848	30.13785	12.017	7.9	2.3	-27.2	212.5	357.6	254.8	156.2E	
AUG 21	20 8 36.4	-19-48-13.5	29.23838	30.13771	13.862	7.9	2.3	-27.2	197.7	357.7	254.9	152.3E	
AUG 25	20 8 13.9	-19-49-26.5	29.27247	30.13758	15.639	7.9	2.3	-27.2	183.0	357.8	254.9	148.3E	
AUG 29	20 7 52.6	-19-50-35.6	29.31057	30.13745	17.336	7.9	2.3	-27.2	168.2	357.9	254.9	144.4E	
SEP 2	20 7 32.8	-19-51-40.5	29.35249	30.13731	18.944	7.9	2.3	-27.1	153.4	357.9	254.9	140.5E	
SEP 6	20 7 14.4	-19-52-41.0	29.39802	30.13718	20.459	7.9	2.3	-27.1	138.6	358.0	255.0	136.5E	
SEP 10	20 6 57.6	-19-53-36.6	29.44695	30.13705	21.885	7.9	2.3	-27.1	123.8	358.0	255.0	132.6E	
SEP 14	20 6 42.5	-19-54-26.9	29.49907	30.13691	23.219	7.9	2.3	-27.1	108.9	358.1	255.0	128.6E	
SEP 18	20 6 29.2	-19-55-12.0	29.55414	30.13678	24.447	7.9	2.3	-27.1	94.1	358.1	255.0	124.7E	
SEP 22	20 6 17.9	-19-55-51.3	29.61193	30.13665	25.556	7.9	2.3	-27.1	79.2	358.2	255.1	120.7E	
SEP 26	20 6 8.5	-19-56-24.5	29.67212	30.13651	26.536	7.9	2.3	-27.1	64.3	358.2	255.1	116.7E	
SEP 30	20 6 1.2	-19-56-51.6	29.73443	30.13638	27.382	7.9	2.3	-27.1	49.4	358.2	255.1	112.8E	
OCT 4	20 5 56.0	-19-57-12.5	29.79853	30.13624	28.097	7.9	2.3	-27.1	34.5	358.3	255.1	108.8E	
OCT 8	20 5 53.0	-19-57-26.9	29.86415	30.13611	28.686	7.9	2.3	-27.1	19.5	358.3	255.2	104.9E	
OCT 12	20 5 52.2	-19-57-34.6	29.93098	30.13597	29.151	7.9	2.3	-27.1	4.6	358.3	255.2	100.9E	
OCT 16	20 5 53.6	-19-57-35.8	29.99873	30.13584	29.479	7.9	2.3	-27.1	349.6	358.3	255.2	97.0E	
OCT 20	20 5 57.2	-19-57-30.3	30.06707	30.13571	29.662	7.9	2.3	-27.1	334.6	358.2	255.2	93.0E	
OCT 24	20 6 3.1	-19-57-17.9	30.13566	30.13557	29.696	7.9	2.3	-27.1	319.6	358.2	255.3	89.1E	
OCT 28	20 6 11.3	-19-56-58.7	30.20416	30.13544	29.583	7.9	2.3	-27.1	304.7	358.2	255.3	85.1E	
NOV 1	20 6 21.7	-19-56-33.0	30.27224	30.13530	29.328	7.9	2.3	-27.1	289.6	358.2	255.3	81.1E	
NOV 5	20 6 34.2	-19-56-0.4	30.33957	30.13517	28.943	7.9	2.3	-27.1	274.6	358.1	255.3	77.2E	
NOV 9	20 6 48.9	-19-55-21.1	30.40587	30.13503	28.431	7.9	2.2	-27.1	259.6	358.1	255.3	73.2E	
NOV 13	20 7 5.7	-19-54-35.6	30.47083	30.13490	27.786	7.9	2.2	-27.1	244.6	358.0	255.4	69.3E	
NOV 17	20 7 24.5	-19-53-43.6	30.53415	30.13476	27.002	7.9	2.2	-27.1	229.6	357.9	255.4	65.3E	
NOV 21	20 7 45.4	-19-52-45.2	30.59549	30.13463	26.083	8.0	2.2	-27.1	214.5	357.9	255.4	61.4E	
NOV 25	20 8 8.2	-19-51-40.8	30.65457	30.13449	25.035	8.0	2.2	-27.1	199.5	357.8	255.4	57.4E	
NOV 29	20 8 32.7	-19-50-30.8	30.7110										

Date (0 BT)	RA (h m s)	[Mean] Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 4	20 13 18.0	-19-26-20.0	31.06670	30.13313	9.248	8.0	2.2	-27.3	49.4	356.7	255.7	18.0E
JAN 8	20 13 54.6	-19-34-27.3	31.08584	30.13299	7.307	8.0	2.2	-27.4	34.4	356.6	255.7	14.1E
JAN 12	20 14 31.7	-19-32-32.3	31.10044	30.13286	5.326	8.0	2.2	-27.4	19.4	356.5	255.7	10.2E
JAN 16	20 15 9.2	-19-30-35.3	31.11043	30.13272	3.314	8.0	2.2	-27.4	4.5	356.3	255.8	6.2E
JAN 20	20 15 46.9	-19-28-37.1	31.11574	30.13258	1.284	8.0	2.2	-27.4	349.5	356.2	255.8	2.3E
JAN 24	20 16 24.6	-19-26-38.0	31.11636	30.13245	-0.746	8.0	2.2	-27.5	334.6	356.1	255.8	1.6W
JAN 28	20 17 2.3	-19-24-38.3	31.11231	30.13231	-2.760	8.0	2.2	-27.5	319.7	356.0	255.8	5.5W
FEB 1	20 17 39.8	-19-22-38.6	31.10363	30.13217	-4.752	8.0	2.2	-27.5	304.8	355.8	255.9	9.4W
FEB 5	20 18 16.9	-19-20-29.6	31.09038	30.13204	-6.723	8.0	2.2	-27.5	290.0	355.7	255.9	13.4W
FEB 9	20 18 53.5	-19-18-41.3	31.07260	30.13190	-8.668	8.0	2.2	-27.5	275.1	355.6	255.9	17.3W
FEB 13	20 19 29.5	-19-16-44.3	31.05036	30.13176	-10.578	8.0	2.2	-27.6	260.3	355.4	255.9	21.2W
FEB 17	20 20 4.8	-19-14-49.4	31.03376	30.13162	-12.441	8.0	2.2	-27.6	245.4	355.3	255.9	25.1W
FEB 21	20 20 39.1	-19-12-56.8	30.99293	30.13149	-14.239	8.0	2.2	-27.6	230.6	355.2	256.0	29.0W
FEB 25	20 21 12.5	-19-11-6.8	30.95804	30.13135	-15.958	8.0	2.2	-27.6	215.8	355.1	256.0	32.8W
MAR 1	20 21 44.7	-19-9-20.2	30.91927	30.13121	-17.596	8.0	2.2	-27.6	201.1	355.0	256.0	36.7W
MAR 5	20 22 15.6	-19-7-37.4	30.87680	30.13107	-19.156	8.0	2.2	-27.7	186.3	354.9	256.0	40.6W
MAR 9	20 22 45.2	-19-5-58.5	30.83083	30.13094	-20.634	8.0	2.2	-27.7	171.6	354.8	256.1	44.5W
MAR 13	20 23 13.4	-19-4-24.0	30.78154	30.13080	-22.024	8.0	2.2	-27.7	156.8	354.7	256.1	48.4W
MAR 17	20 23 40.0	-19-2-54.7	30.72915	30.13066	-23.313	8.0	2.2	-27.7	142.1	354.6	256.1	52.3W
MAR 21	20 24 4.9	-19-1-30.6	30.67391	30.13052	-24.488	8.0	2.2	-27.7	127.4	354.5	256.1	56.2W
MAR 25	20 24 28.0	-19-0-11.9	30.61611	30.13038	-25.538	8.0	2.2	-27.7	112.8	354.4	256.2	60.0W
MAR 29	20 24 49.4	-18-58-59.5	30.55601	30.13025	-26.467	8.0	2.2	-27.7	98.1	354.3	256.2	63.9W
APR 2	20 25 8.8	-18-57-53.3	30.49391	30.13011	-27.279	7.9	2.2	-27.8	83.5	354.3	256.2	67.8W
APR 6	20 25 26.3	-18-56-53.4	30.43007	30.12997	-27.974	7.9	2.2	-27.8	68.8	354.2	256.2	71.6W
APR 10	20 25 41.8	-18-56-0.3	30.36475	30.12983	-28.548	7.9	2.2	-27.8	54.2	354.2	256.3	75.5W
APR 14	20 25 55.3	-18-55-14.4	30.29826	30.12969	-28.992	7.9	2.3	-27.8	39.6	354.1	256.3	79.4W
APR 18	20 26 6.6	-18-54-35.6	30.23091	30.12956	-29.296	7.9	2.3	-27.8	25.0	354.1	256.3	83.3W
APR 22	20 26 15.9	-18-54-3.9	30.16302	30.12942	-29.454	7.9	2.3	-27.8	10.4	354.0	256.3	87.1W
APR 26	20 26 22.8	-18-53-39.9	30.09493	30.12928	-29.475	7.9	2.3	-27.8	355.9	354.0	256.4	91.0W
APR 30	20 26 27.6	-18-53-23.4	30.02693	30.12914	-29.368	7.9	2.3	-27.8	341.3	354.0	256.4	94.9W
MAY 4	20 26 30.3	-18-53-14.2	29.95933	30.12900	-29.134	7.9	2.3	-27.8	326.8	354.0	256.4	98.7W
MAY 8	20 26 30.9	-18-53-12.6	29.89242	30.12887	-28.773	7.9	2.3	-27.8	312.2	354.0	256.4	102.6W
MAY 12	20 26 29.3	-18-53-18.6	29.82649	30.12873	-28.279	7.9	2.3	-27.8	297.7	354.0	256.5	106.5W
MAY 16	20 26 25.5	-18-53-31.8	29.76186	30.12859	-27.647	7.9	2.3	-27.8	283.1	354.0	256.5	110.4W
MAY 20	20 26 19.8	-18-53-52.2	29.69886	30.12845	-26.876	7.9	2.3	-27.8	268.6	354.0	256.5	114.2W
MAY 24	20 26 11.9	-18-54-20.0	29.63778	30.12831	-26.982	7.9	2.3	-27.8	254.1	354.1	256.5	118.1W
MAY 28	20 26 2.1	-18-54-54.6	29.57890	30.12817	-24.974	7.9	2.3	-27.8	239.6	354.1	256.5	122.0W
JUN 1	20 25 50.3	-18-55-35.7	29.52247	30.12803	-23.858	7.9	2.3	-27.8	225.1	354.1	256.6	125.9W
JUN 5	20 25 36.8	-18-56-23.2	29.46874	30.12790	-22.637	7.9	2.3	-27.8	210.5	354.2	256.6	129.8W
JUN 9	20 25 21.5	-18-57-17.0	29.41796	30.12776	-21.308	7.9	2.3	-27.8	196.0	354.2	256.6	133.7W
JUN 13	20 25 4.5	-18-58-16.3	29.37037	30.12762	-19.870	7.9	2.3	-27.8	181.5	354.3	256.6	137.6W
JUN 17	20 24 46.0	-18-59-20.9	29.32622	30.12748	-18.329	7.9	2.3	-27.7	167.0	354.4	256.7	141.4W
JUN 21	20 24 26.6	-19-0-30.7	29.28574	30.12734	-16.702	7.9	2.3	-27.7	152.4	354.4	256.7	145.3W
JUN 25	20 24 4.7	-19-1-44.9	29.24910	30.12720	-15.004	7.9	2.3	-27.7	137.9	354.5	256.7	149.3W
JUN 29	20 23 42.3	-19-3-2.9	29.21646	30.12706	-13.243	7.9	2.3	-27.7	123.3	354.6	256.7	153.2W
JUL 3	20 23 18.8	-19-4-24.7	29.18796	30.12692	-11.422	7.9	2.3	-27.7	108.8	354.7	256.8	157.1W
JUL 7	20 22 54.3	-19-5-49.6	29.16373	30.12678	-9.542	7.8	2.3	-27.7	94.2	354.7	256.8	161.0W
JUL 11	20 22 29.1	-19-7-16.9	29.14391	30.12664	-7.606	7.8	2.3	-27.7	79.7	354.8	256.8	164.9W
JUL 15	20 22 3.2	-19-8-46.3	29.12862	30.12651	-5.633	7.8	2.3	-27.6	65.1	354.9	256.8	168.8W
JUL 19	20 21 36.9	-19-10-17.3	29.11794	30.12637	-3.615	7.8	2.3	-27.6	50.5	355.0	256.9	172.7W
JUL 23	20 21 10.3	-19-11-49.1	29.11191	30.12623	-1.597	7.8	2.3	-27.6	35.9	355.1	256.9	176.7W
JUL 27	20 20 43.5	-19-13-21.2	29.11056	30.12609	0.424	7.8	2.3	-27.6	21.2	355.2	256.9	179.3E
JUL 31	20 20 16.8	-19-14-53.4	29.11386	30.12595	2.442	7.8	2.3	-27.6	6.6	355.3	256.9	175.5E
AUG 4	20 19 50.2	-19-16-24.9	29.12183	30.12581	4.455	7.8	2.3	-27.6	351.9	355.4	257.0	171.5E
AUG 8	20 19 23.9	-19-17-54.9	29.13444	30.12567	6.460	7.8	2.3	-27.5	337.3	355.5	257.0	167.6E
AUG 12	20 18 58.2	-19-19-23.4	29.15165	30.12553	8.443	7.8	2.3	-27.5	322.6	355.6	257.0	163.7E
AUG 16	20 18 33.0	-19-20-49.8	29.17340	30.12539	10.382	7.8	2.3	-27.5	307.9	355.6	257.0	159.7E
AUG 20	20 18 8.7	-19-22-14.2	29.19957	30.12525	12.266	7.9	2.3	-27.5	293.2	355.7	257.1	155.8E
AUG 24	20 17 45.4	-19-23-33.3	29.23002	30.12511	14.086	7.9	2.3	-27.5	278.4	355.8	257.1	151.8E
AUG 28	20 17 23.2	-19-24-50.0	29.26460	30.12497	15.839	7.9	2.3	-27.5	263.7	355.9	257.1	147.9E
SEP 1	20 17 2.1	-19-26-2.6	29.30315	30.12483	17.525	7.9	2.3	-27.5	248.9	356.0	257.1	143.9E
SEP 5	20 16 42.5	-19-27-10.4	29.34551	30.12469	19.139	7.9	2.3	-27.4	234.1	356.0	257.1	140.0E
SEP 9	20 16 24.4	-19-28-13.6	29.39151	30.12455	20.668	7.9	2.3	-27.4	219.3	356.1	257.2	136.0E
SEP 13	20 16 7.8	-19-29-11.6	29.44093	30.12441	22.094	7.9	2.3	-27.4	204.5	356.1	257.2	132.1E
SEP 17	20 15 53.0	-19-30-3.8	29.49350	30.12427	23.406	7.9	2.3	-27.4	189.6	356.2	257.2	128.1E
SEP 21	20 15 40.1	-19-30-50.1	29.54897	30.12413	24.602	7.9	2.3	-27.4	174.8	356.2	257.2	124.2E
SEP 25	20 15 29.6	-19-31-30.5	29.60707	30.12399	25.681	7.9	2.3	-27.4	159.9	356.3	257.3	120.2E
SEP 29	20 15 20.0	-19-32-4.3	29.66754	30.12384	26.646	7.9	2.3	-27.4	145.0	356.3	257.3	116.2E
OCT 3	20 15 13.0	-19-32-31.5	29.73010	30.12370	27.495	7.9	2.3	-27.4	130.1	356.3	257.3	112.3E
OCT 7	20 15 8.1	-19-32-52.1	29.79447	30.12356	28.216	7.9	2.3	-27.4	115.2	356.4	257.3	108.3E
OCT 11	20 15 5.3	-19-33-5.8	29.86035	30.12342	28.796	7.9	2.3	-27.4	100.2	356.4	257.4	104.4E
OCT 15	20 15 4.8	-19-33-12.2	29.92741	30.12328	29.229	7.9	2.3	-27.4	85.3	356.4	257.4	100.4E
OCT 19	20 15 6.5	-19-33-11.6	29.99529	30.12314	29.519	7.9	2.3	-27.4	70.3	356.4	257.4	96.4E
OCT 23	20 15 10.4	-19-33-4.0	30.06369	30.12300	29.669	7.9	2.3	-27.4	55.3	356.3	257.4	92.5E
OCT 27	20 15 14.5	-19-33-48.9	30.13227	30.12286	29.687	7.9	2.3	-27.4	40.3	356.3	257.5	88.5E
OCT 31	20 15 24.0	-19-33-26.7	30.20075	30.12272	29.574	7.9	2.3	-27.4	25.3	356.3	257.5	84.6E
NOV 4	20 15 35.5	-19-31-57.5	30.26881	30.12258	29.320	7.9	2.3	-27.4	10.3	356.3	257.5	80.6E
NOV 8	20 15 48.3	-19-31-21.1	30.33611	30.12244	28.919	7.9	2.3	-27.4	355.3	356.2	257.5	76.6E
NOV 12	20 16 3.2	-19-30-37.5	30.40232	30.12230	28.373	7.9	2.2	-27.4	340.3	356.2	257.6	72.7E
NOV 16	20 16 20.2	-19-29-47.1	30.46710	30.12216	27.687	7.9	2.2	-27.4	325.3	356.1	257.6	68.7E
NOV 20	20 16 39.3	-19-28-50.2	30.53015	30.12202	26.872	7.9	2.2	-27.4	310.2	356.0	257.6	64.8E
NOV 24	20 17 0.3	-19-27-46.4	30.59118	30.12188	25.940	8.0	2.2	-27.4	295.2	356.0	257.6	60.8E
NOV 28	20 17 23.1	-19-26-36.3	30.64992	30.12173	24.895	8.0	2.2	-27.4	280.2	355.9	257.7	56.9E
DEC 2	20 17 47.8	-19-25-20.2	30									

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	20 21 57.2	-19-12 -4.1	31.03417	30.12047	10.901	8.0	2.2	-27.6	145.0	354.9	257.9	21.4E	
JAN 7	20 22 33.1	-19-10 -6.5	31.05715	30.12033	8.978	8.0	2.2	-27.6	130.0	354.8	257.9	17.4E	
JAN 11	20 23 9.6	-19 -8 -6.3	31.07563	30.12019	7.013	8.0	2.2	-27.6	115.1	354.7	257.9	13.5E	
JAN 15	20 23 46.6	-19 -6 -3.9	31.08954	30.12005	5.021	8.0	2.2	-27.7	100.1	354.6	257.9	9.6E	
JAN 19	20 24 23.9	-19 -3-59.5	31.09883	30.11991	3.018	8.0	2.2	-27.7	85.1	354.4	258.0	5.6E	
JAN 23	20 25 1.4	-19 -1-54.0	31.10348	30.11977	1.010	8.0	2.2	-27.7	70.2	354.3	258.0	1.7E	
JAN 27	20 25 38.9	-18-59-47.8	31.10349	30.11963	-1.005	8.0	2.2	-27.7	55.3	354.2	258.0	2.2W	
JAN 31	20 26 16.3	-18-57-41.0	31.09884	30.11949	-3.022	8.0	2.2	-27.7	40.4	354.0	258.0	6.1W	
FEB 4	20 26 53.5	-18-55-34.4	31.08954	30.11935	-5.029	8.0	2.2	-27.8	25.5	353.9	258.1	10.0W	
FEB 8	20 27 30.4	-18-53-28.6	31.07563	30.11921	-7.012	8.0	2.2	-27.8	10.6	353.8	258.1	13.9W	
FEB 12	20 28 6.7	-18-51-23.9	31.05718	30.11907	-8.954	8.0	2.2	-27.8	355.8	353.7	258.1	17.8W	
FEB 16	20 28 42.4	-18-49-20.6	31.03431	30.11893	-10.842	8.0	2.2	-27.8	340.9	353.5	258.1	21.7W	
FEB 20	20 29 17.3	-18-47-19.7	31.00714	30.11879	-12.672	8.0	2.2	-27.8	326.1	353.4	258.2	25.6W	
FEB 24	20 29 51.3	-18-45-21.4	30.97581	30.11865	-14.447	8.0	2.2	-27.8	311.3	353.3	258.2	29.5W	
FEB 28	20 30 24.3	-18-43-25.9	30.94044	30.11851	-16.163	8.0	2.2	-27.9	296.5	353.2	258.2	33.4W	
MAR 3	20 30 56.2	-18-41-34.1	30.90119	30.11837	-17.809	8.0	2.2	-27.9	281.7	353.1	258.2	37.3W	
MAR 7	20 31 26.8	-18-39-46.5	30.85823	30.11823	-19.371	8.0	2.2	-27.9	267.0	353.0	258.3	41.2W	
MAR 11	20 31 56.0	-18-38 -3.1	30.81176	30.11809	-20.836	8.0	2.2	-27.9	252.2	352.9	258.3	45.0W	
MAR 15	20 32 23.8	-18-36-24.6	30.76204	30.11795	-22.193	8.0	2.2	-27.9	237.5	352.8	258.3	48.9W	
MAR 19	20 32 50.0	-18-34-51.5	30.70931	30.11781	-23.444	8.0	2.2	-27.9	222.8	352.7	258.3	52.8W	
MAR 23	20 33 14.5	-18-33-24.1	30.65380	30.11767	-24.594	8.0	2.2	-27.9	208.1	352.6	258.3	56.7W	
MAR 27	20 33 37.3	-18-32 -2.5	30.59576	30.11753	-25.639	8.0	2.2	-28.0	193.5	352.5	258.4	60.5W	
MAR 31	20 33 58.3	-18-30-47.3	30.53543	30.11739	-26.572	7.9	2.2	-28.0	178.8	352.4	258.4	64.4W	
APR 4	20 34 17.4	-18-29-38.9	30.47308	30.11724	-27.382	7.9	2.2	-28.0	164.2	352.4	258.4	68.3W	
APR 8	20 34 34.6	-18-28-37.3	30.40902	30.11710	-28.058	7.9	2.2	-28.0	149.5	352.3	258.4	72.1W	
APR 12	20 34 49.7	-18-27-42.9	30.34355	30.11696	-28.595	7.9	2.3	-28.0	134.9	352.3	258.5	76.0W	
APR 16	20 35 2.8	-18-26-56.1	30.27700	30.11682	-29.001	7.9	2.3	-28.0	120.3	352.2	258.5	79.9W	
APR 20	20 35 13.7	-18-26-16.7	30.20966	30.11668	-29.282	7.9	2.3	-28.0	105.7	352.2	258.5	83.7W	
APR 24	20 35 22.6	-18-25-44.9	30.14181	30.11654	-29.437	7.9	2.3	-28.0	91.1	352.1	258.5	87.6W	
APR 28	20 35 29.4	-18-25-21.1	30.07375	30.11640	-29.463	7.9	2.3	-28.0	76.6	352.1	258.6	91.5W	
MAY 2	20 35 33.9	-18-25 -5.2	30.00578	30.11626	-29.352	7.9	2.3	-28.0	62.0	352.1	258.6	95.3W	
MAY 6	20 35 36.4	-18-24-57.1	29.93824	30.11612	-29.098	7.9	2.3	-28.0	47.5	352.1	258.6	99.2W	
MAY 10	20 35 36.7	-18-24-56.9	29.87145	30.11598	-28.700	7.9	2.3	-28.0	32.9	352.1	258.6	103.1W	
MAY 14	20 35 34.8	-18-25 -4.8	29.80573	30.11584	-28.172	7.9	2.3	-28.0	18.4	352.1	258.7	106.9W	
MAY 18	20 35 30.8	-18-25-20.2	29.74137	30.11570	-27.523	7.9	2.3	-28.0	3.9	352.1	258.7	110.8W	
MAY 22	20 35 24.8	-18-25-43.1	29.67865	30.11556	-26.756	7.9	2.3	-28.0	349.3	352.1	258.7	114.7W	
MAY 26	20 35 16.8	-18-26-13.7	29.61784	30.11542	-25.868	7.9	2.3	-28.0	334.8	352.2	258.7	118.6W	
MAY 30	20 35 6.8	-18-26-51.5	29.55922	30.11528	-24.858	7.9	2.3	-28.0	320.3	352.2	258.8	122.4W	
JUN 3	20 34 54.9	-18-27-36.0	29.50308	30.11514	-23.722	7.9	2.3	-28.0	305.8	352.2	258.8	126.3W	
JUN 7	20 34 41.2	-18-28-27.3	29.44970	30.11501	-22.468	7.9	2.3	-28.0	291.2	352.3	258.8	130.2W	
JUN 11	20 34 25.8	-18-29-25.1	29.39935	30.11487	-21.111	7.9	2.3	-28.0	276.7	352.3	258.8	134.1W	
JUN 15	20 34 8.7	-18-30-28.7	29.35223	30.11473	-19.664	7.9	2.3	-28.0	262.2	352.4	258.9	138.0W	
JUN 19	20 33 50.2	-18-31-37.7	29.30855	30.11459	-18.132	7.9	2.3	-28.0	247.7	352.5	258.9	141.9W	
JUN 23	20 33 30.2	-18-32-52.1	29.26851	30.11445	-16.516	7.9	2.3	-27.9	233.1	352.5	258.9	145.8W	
JUN 27	20 33 8.8	-18-34-11.1	29.23230	30.11431	-14.818	7.9	2.3	-27.9	218.6	352.6	258.9	149.7W	
JUL 1	20 32 46.4	-18-35-34.1	29.20011	30.11417	-13.038	7.9	2.3	-27.9	204.0	352.7	258.9	153.6W	
JUL 5	20 32 22.9	-18-37 -1.0	29.17211	30.11403	-11.187	7.8	2.3	-27.9	189.5	352.8	259.0	157.5W	
JUL 9	20 31 58.4	-18-38-31.1	29.14845	30.11389	-9.287	7.8	2.3	-27.9	174.9	352.9	259.0	161.4W	
JUL 13	20 31 33.2	-18-40 -3.6	29.12922	30.11375	-7.351	7.8	2.3	-27.9	160.4	352.9	259.0	165.3W	
JUL 17	20 31 7.5	-18-41-38.1	29.11450	30.11361	-5.385	7.8	2.3	-27.9	145.8	353.0	259.0	169.2W	
JUL 21	20 30 41.3	-18-43-14.3	29.10436	30.11347	-3.392	7.8	2.3	-27.9	131.2	353.1	259.1	173.2W	
JUL 25	20 30 14.7	-18-44-51.3	29.09884	30.11333	-1.375	7.8	2.3	-27.8	116.6	353.2	259.1	177.1W	
JUL 29	20 29 48.1	-18-46-28.5	29.09801	30.11319	0.661	7.8	2.3	-27.8	101.9	353.3	259.1	178.9E	
AUG 2	20 29 21.5	-18-48 -5.6	29.10190	30.11305	2.702	7.8	2.3	-27.8	87.3	353.4	259.1	175.0E	
AUG 6	20 28 55.0	-18-49-42.0	29.11048	30.11291	4.727	7.8	2.3	-27.8	72.6	353.5	259.2	171.1E	
AUG 10	20 28 29.0	-18-51-16.8	29.12371	30.11278	6.721	7.8	2.3	-27.8	58.0	353.6	259.2	167.2E	
AUG 14	20 28 3.4	-18-52-49.7	29.14150	30.11264	8.680	7.8	2.3	-27.8	43.3	353.7	259.2	163.2E	
AUG 18	20 27 38.5	-18-54-20.4	29.16378	30.11250	10.600	7.8	2.3	-27.8	28.6	353.8	259.2	159.3E	
AUG 22	20 27 14.4	-18-55-47.9	29.19044	30.11236	12.479	7.8	2.3	-27.7	13.9	353.8	259.3	155.3E	
AUG 26	20 26 51.3	-18-57-11.8	29.22139	30.11222	14.311	7.9	2.3	-27.7	359.1	353.9	259.3	151.4E	
AUG 30	20 26 29.3	-18-58-32.0	29.25651	30.11208	16.079	7.9	2.3	-27.7	344.4	354.0	259.3	147.4E	
SEP 3	20 26 8.6	-18-59-47.8	29.29562	30.11194	17.765	7.9	2.3	-27.7	329.6	354.1	259.3	143.5E	
SEP 7	20 25 49.2	-19 0-58.5	29.33852	30.11180	19.359	7.9	2.3	-27.7	314.8	354.1	259.4	139.5E	
SEP 11	20 25 31.4	-19 -2 -4.0	29.38498	30.11167	20.856	7.9	2.3	-27.7	300.0	354.2	259.4	135.5E	
SEP 15	20 25 15.1	-19 -3 -4.0	29.43480	30.11153	22.257	7.9	2.3	-27.7	285.2	354.3	259.4	131.6E	
SEP 19	20 25 0.6	-19 -3-57.9	29.48774	30.11139	23.561	7.9	2.3	-27.7	270.3	354.3	259.4	127.6E	
SEP 23	20 24 47.9	-19 -4-45.5	29.54358	30.11125	24.763	7.9	2.3	-27.7	255.4	354.4	259.5	123.7E	
SEP 27	20 24 37.1	-19 -5-26.8	29.60207	30.11111	25.850	7.9	2.3	-27.6	240.6	354.4	259.5	119.7E	
OCT 1	20 24 28.3	-19 -6 -1.1	29.66291	30.11097	26.804	7.9	2.3	-27.6	225.7	354.4	259.5	115.7E	
OCT 5	20 24 21.6	-19 -6-28.2	29.72581	30.11084	27.622	7.9	2.3	-27.6	210.8	354.4	259.5	111.8E	
OCT 9	20 24 17.0	-19 -6-48.2	29.79043	30.11070	28.306	7.9	2.3	-27.6	195.8	354.5	259.5	107.8E	
OCT 13	20 24 14.6	-19 -7 -1.0	29.85649	30.11056	28.857	7.9	2.3	-27.6	180.9	354.5	259.6	103.8E	
OCT 17	20 24 14.3	-19 -7 -6.1	29.92366	30.11042	29.279	7.9	2.3	-27.6	165.9	354.5	259.6	99.9E	
OCT 21	20 24 16.3	-19 -7 -3.6	29.99167	30.11028	29.571	7.9	2.3	-27.6	151.0	354.5	259.6	95.9E	
OCT 25	20 24 20.5	-19 -6-53.8	30.06018	30.11014	29.722	7.9	2.3	-27.6	136.0	354.4	259.6	91.9E	
OCT 29	20 24 26.9	-19 -6-36.1	30.12887	30.11001	29.721	7.9	2.3	-27.6	121.0	354.4	259.7	88.0E	
NOV 2	20 24 35.5	-19 -6-10.7	30.19739	30.10987	29.571	7.9	2.3	-27.6	106.0	354.4	259.7	84.0E	
NOV 6	20 24 46.4	-19 -5-37.9	30.26539	30.10973	29.277	7.9	2.3	-27.6	91.0	354.4	259.7	80.0E	
NOV 10	20 24 59.4	-19 -4-57.6	30.33256	30.10959	28.847	7.9	2.3	-27.6	76.0	354.3	259.7	76.1E	
NOV 14	20 25 14.5	-19 -4 -9.6	30.39858	30.10945	28.290	7.9	2.2	-27.7	60.9	354.3	259.8	72.1E	
NOV 18	20 25 31.7	-19 -3-14.6	30.46317	30.10932	27.607	7.9	2.2	-27.7	45.9	354.2	259.8	68.2E	
NOV 22	20 25 50.8	-19 -2-12.6	30.52603	30.10918	26.789	7.9	2.2	-27.7	30.9	354.1	259.8	64.2E	
NOV 26	20 26 12.0	-19 -1 -3.5	30.58685	30.10904	25.836	8.0	2.2	-27.7	15.9	354.1	259.8	60.2E	
NOV 30	20 26 35.0	-18-59-47.7	30.6										

Date (0 DT)	RA [Mean]			Dec	Delta	Rho	RV	V	Diam	S.E.	S.E.	P.A.	L _s	Solar Elong
	(h	m	s)	(d	'	"	(a.u.)	(a.u.)	(km/s)	(")	Lat	Long	Axis	
JAN 1	20	30	34.2	-18-46-16.8	30.99838	30.10781	12.494	8.0	2.2	-27.8	240.7	353.2	260.1	24.7E
JAN 5	20	31	9.2	-18-44-15.2	31.02509	30.10767	10.616	8.0	2.2	-27.8	225.7	353.0	260.1	20.8E
JAN 9	20	31	45.0	-18-42-10.2	31.04741	30.10753	8.700	8.0	2.2	-27.8	210.7	352.9	260.1	16.8E
JAN 13	20	32	21.3	-18-40-2.9	31.06527	30.10740	6.752	8.0	2.2	-27.9	195.7	352.8	260.1	12.9E
JAN 17	20	32	58.1	-18-37-53.3	31.07859	30.10726	4.768	8.0	2.2	-27.9	180.8	352.7	260.1	9.0E
JAN 21	20	33	35.2	-18-35-41.8	31.08728	30.10712	2.755	8.0	2.2	-27.9	165.8	352.5	260.2	5.1E
JAN 25	20	34	12.5	-18-33-29.2	31.09131	30.10699	0.726	8.0	2.2	-27.9	150.9	352.4	260.2	1.2E
JAN 29	20	34	49.9	-18-31-16.0	31.09064	30.10685	-1.303	8.0	2.2	-27.9	136.0	352.3	260.2	2.8W
FEB 2	20	35	27.0	-18-29-2.5	31.08530	30.10671	-3.318	8.0	2.2	-27.9	121.1	352.1	260.2	6.7W
FEB 6	20	36	4.0	-18-26-49.2	31.07534	30.10658	-5.304	8.0	2.2	-28.0	106.2	352.0	260.3	10.6W
FEB 10	20	36	40.5	-18-24-37.0	31.06083	30.10644	-7.259	8.0	2.2	-28.0	91.3	351.9	260.3	14.5W
FEB 14	20	37	16.6	-18-22-26.1	31.04183	30.10631	-9.185	8.0	2.2	-28.0	76.4	351.8	260.3	18.4W
FEB 18	20	37	51.9	-18-20-16.8	31.01842	30.10617	-11.076	8.0	2.2	-28.0	61.6	351.6	260.3	22.3W
FEB 22	20	38	26.6	-18-18-10.1	30.99070	30.10604	-12.918	8.0	2.2	-28.0	46.8	351.5	260.4	26.2W
FEB 26	20	39	0.2	-18-16-6.3	30.95879	30.10590	-14.696	8.0	2.2	-28.0	32.0	351.4	260.4	30.1W
MAR 2	20	39	32.9	-18-14-5.8	30.92286	30.10577	-16.397	8.0	2.2	-28.1	17.2	351.3	260.4	33.9W
MAR 6	20	40	4.4	-18-12-9.0	30.88310	30.10563	-18.012	8.0	2.2	-28.1	2.4	351.2	260.4	37.8W
MAR 10	20	40	34.6	-18-10-16.9	30.83971	30.10550	-19.539	8.0	2.2	-28.1	347.7	351.1	260.5	41.7W
MAR 14	20	41	3.5	-18-8-29.4	30.79289	30.10536	-20.983	8.0	2.2	-28.1	332.9	351.0	260.5	45.6W
MAR 18	20	41	30.9	-18-6-47.0	30.74283	30.10523	-22.340	8.0	2.2	-28.1	318.2	350.9	260.5	49.4W
MAR 22	20	41	56.8	-18-5-10.4	30.68975	30.10509	-23.597	8.0	2.2	-28.1	303.5	350.8	260.5	53.3W
MAR 26	20	42	20.9	-18-3-39.8	30.63390	30.10496	-24.742	8.0	2.2	-28.1	288.8	350.7	260.6	57.2W
MAR 30	20	42	43.3	-18-2-15.5	30.57553	30.10482	-25.765	8.0	2.2	-28.1	274.1	350.6	260.6	61.0W
APR 3	20	43	4.0	-18-0-57.9	30.51495	30.10469	-26.661	7.9	2.2	-28.1	259.5	350.6	260.6	64.9W
APR 7	20	43	22.7	-17-59-47.7	30.45245	30.10455	-27.434	7.9	2.2	-28.1	244.8	350.5	260.6	68.8W
APR 11	20	43	39.5	-17-58-44.6	30.38829	30.10442	-28.091	7.9	2.2	-28.1	230.2	350.4	260.7	72.6W
APR 15	20	43	54.3	-17-57-48.9	30.32275	30.10429	-28.628	7.9	2.3	-28.2	215.6	350.4	260.7	76.5W
APR 19	20	44	7.0	-17-57-1.2	30.25611	30.10415	-29.038	7.9	2.3	-28.2	201.0	350.3	260.7	80.4W
APR 23	20	44	17.7	-17-56-21.5	30.18869	30.10402	-29.311	7.9	2.3	-28.2	186.4	350.3	260.7	84.2W
APR 27	20	44	26.2	-17-55-49.7	30.12080	30.10389	-29.442	7.9	2.3	-28.2	171.8	350.3	260.7	88.1W
MAY 1	20	44	32.7	-17-55-26.3	30.05277	30.10375	-29.430	7.9	2.3	-28.2	157.3	350.2	260.8	91.9W
MAY 5	20	44	36.9	-17-55-11.3	29.98492	30.10362	-29.285	7.9	2.3	-28.2	142.7	350.2	260.8	95.8W
MAY 9	20	44	39.1	-17-55-4.3	29.91755	30.10348	-29.016	7.9	2.3	-28.2	128.2	350.2	260.8	99.7W
MAY 13	20	44	39.1	-17-55-5.6	29.85095	30.10335	-28.623	7.9	2.3	-28.2	113.6	350.2	260.8	103.5W
MAY 17	20	44	37.1	-17-55-15.2	29.78540	30.10322	-28.100	7.9	2.3	-28.2	99.1	350.2	260.9	107.4W
MAY 21	20	44	32.9	-17-55-33.0	29.72121	30.10309	-27.444	7.9	2.3	-28.2	84.5	350.2	260.9	111.3W
MAY 25	20	44	26.6	-17-55-58.4	29.65870	30.10295	-26.651	7.9	2.3	-28.2	70.0	350.3	260.9	115.1W
MAY 29	20	44	18.4	-17-56-31.8	29.59817	30.10282	-25.729	7.9	2.3	-28.2	55.5	350.3	260.9	119.0W
JUN 2	20	44	8.3	-17-57-12.9	29.53991	30.10269	-24.690	7.9	2.3	-28.2	41.0	350.3	261.0	122.9W
JUN 6	20	43	56.2	-17-58-0.9	29.48417	30.10255	-23.547	7.9	2.3	-28.2	26.5	350.4	261.0	126.8W
JUN 10	20	43	42.5	-17-58-55.8	29.43119	30.10242	-22.302	7.9	2.3	-28.1	11.9	350.4	261.0	130.6W
JUN 14	20	43	26.9	-17-59-57.5	29.38121	30.10229	-20.952	7.9	2.3	-28.1	357.4	350.5	261.0	134.5W
JUN 18	20	43	9.8	-18-1-5.4	29.33446	30.10216	-19.499	7.9	2.3	-28.1	342.9	350.5	261.1	138.4W
JUN 22	20	42	51.1	-18-2-18.7	29.29119	30.10202	-17.943	7.9	2.3	-28.1	328.4	350.6	261.1	142.3W
JUN 26	20	42	31.1	-18-3-37.7	29.25162	30.10189	-16.297	7.9	2.3	-28.1	313.8	350.7	261.1	146.2W
JUN 30	20	42	9.7	-18-5-1.5	29.21594	30.10176	-14.578	7.9	2.3	-28.1	299.3	350.7	261.1	150.1W
JUL 4	20	41	47.2	-18-6-29.3	29.18431	30.10163	-12.799	7.8	2.3	-28.1	284.7	350.8	261.2	154.0W
JUL 8	20	41	23.8	-18-9-1.0	29.15685	30.10149	-10.963	7.8	2.3	-28.1	270.2	350.9	261.2	157.9W
JUL 12	20	40	59.4	-18-9-36.1	29.13369	30.10136	-9.074	7.8	2.3	-28.1	255.6	351.0	261.2	161.8W
JUL 16	20	40	34.3	-18-11-13.7	29.11496	30.10123	-7.133	7.8	2.3	-28.1	241.1	351.1	261.2	165.8W
JUL 20	20	40	8.6	-18-12-53.2	29.10076	30.10110	-5.146	7.8	2.3	-28.1	226.5	351.2	261.3	169.7W
JUL 24	20	39	42.5	-18-14-34.5	29.09120	30.10097	-3.127	7.8	2.3	-28.0	211.9	351.3	261.3	173.6W
JUL 28	20	39	16.0	-18-16-16.6	29.08631	30.10083	-1.099	7.8	2.3	-28.0	197.3	351.3	261.3	177.5W
AUG 1	20	38	49.5	-18-17-58.7	29.08611	30.10070	0.927	7.8	2.3	-28.0	182.6	351.4	261.3	178.5E
AUG 5	20	38	23.1	-18-19-40.5	29.09059	30.10057	2.946	7.8	2.3	-28.0	168.0	351.5	261.3	174.6E
AUG 9	20	37	56.8	-18-21-21.6	29.09971	30.10044	4.957	7.8	2.3	-28.0	153.3	351.6	261.4	170.6E
AUG 13	20	37	30.9	-18-23-1.0	29.11347	30.10031	6.953	7.8	2.3	-28.0	138.7	351.7	261.4	166.7E
AUG 17	20	37	5.6	-18-24-38.1	29.13182	30.10018	8.928	7.8	2.3	-28.0	124.0	351.8	261.4	162.8E
AUG 21	20	36	40.9	-18-26-12.9	29.15469	30.10005	10.866	7.8	2.3	-28.0	109.3	351.9	261.4	158.8E
AUG 25	20	36	17.0	-18-27-44.3	29.18197	30.09992	12.745	7.8	2.3	-27.9	94.5	352.0	261.5	154.8E
AUG 29	20	35	54.1	-18-29-11.8	29.21351	30.09978	14.555	7.9	2.3	-27.9	79.8	352.0	261.5	150.9E
SEP 2	20	35	32.4	-18-30-35.1	29.24916	30.09965	16.296	7.9	2.3	-27.9	65.0	352.1	261.5	146.9E
SEP 6	20	35	11.9	-18-31-53.9	29.28874	30.09952	17.963	7.9	2.3	-27.9	50.3	352.2	261.5	143.0E
SEP 10	20	34	52.8	-18-33-7.2	29.33209	30.09939	19.554	7.9	2.3	-27.9	35.5	352.3	261.6	139.0E
SEP 14	20	34	35.2	-18-34-14.9	29.37902	30.09926	21.061	7.9	2.3	-27.9	20.7	352.3	261.6	135.1E
SEP 18	20	34	19.3	-18-35-16.9	29.42932	30.09913	22.471	7.9	2.3	-27.9	5.8	352.4	261.6	131.1E
SEP 22	20	34	5.0	-18-36-12.3	29.48275	30.09900	23.763	7.9	2.3	-27.9	351.0	352.4	261.6	127.1E
SEP 26	20	33	52.7	-18-37-0.9	29.53902	30.09887	24.934	7.9	2.3	-27.9	336.1	352.5	261.7	123.1E
SEP 30	20	33	42.2	-18-37-42.7	29.59786	30.09874	25.985	7.9	2.3	-27.9	321.2	352.5	261.7	119.2E
OCT 4	20	33	33.7	-18-38-17.3	29.65899	30.09861	26.917	7.9	2.3	-27.9	306.3	352.5	261.7	115.2E
OCT 8	20	33	27.3	-18-38-44.2	29.72213	30.09848	27.728	7.9	2.3	-27.8	291.4	352.6	261.7	111.2E
OCT 12	20	33	23.0	-18-39-3.6	29.78701	30.09835	28.416	7.9	2.3	-27.8	276.5	352.6	261.8	107.3E
OCT 16	20	33	20.8	-18-39-15.4	29.85332	30.09822	28.966	7.9	2.3	-27.8	261.5	352.6	261.8	103.3E
OCT 20	20	33	20.8	-18-39-18.9	29.92073	30.09809	29.368	7.9	2.3	-27.8	246.6	352.6	261.8	99.3E
OCT 24	20	33	23.1	-18-39-14.5	29.98889	30.09797	29.621	7.9	2.3	-27.8	231.6	352.6	261.8	95.4E
OCT 28	20	33	27.5	-18-39-2.1	30.05748	30.09784	29.732	7.9	2.3	-27.8	216.6	352.6	261.9	91.4E
NOV 1	20	33	34.2	-18-38-41.7	30.12616	30.09771	29.707	7.9	2.3	-27.8	201.6	352.5	261.9	87.4E
NOV 5	20	33	43.1	-18-38-13.1	30.19463	30.09758	29.549	7.9	2.3	-27.8	186.6	352.5	261.9	83.4E
NOV 9	20	33	54.1	-18-37-36.7	30.26258	30.09745	29.25							

Date (O DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	20 39 43.1	-18-16-54.5	30.99050	30.09566	12.254	8.0	2.2	-28.0	321.3	351.3	262.3	24.1E	
JAN 8	20 40 18.0	-18-14-45.9	31.01665	30.09554	10.378	8.0	2.2	-28.0	306.3	351.1	262.3	20.2E	
JAN 12	20 40 53.7	-18-12-33.9	31.03841	30.09541	8.444	8.0	2.2	-28.0	291.3	351.0	262.3	16.2E	
JAN 16	20 41 29.9	-18-10-19.5	31.05564	30.09529	6.469	8.0	2.2	-28.0	276.4	350.9	262.3	12.3E	
JAN 20	20 42 6.6	-18 -8 -3.0	31.06828	30.09516	4.469	8.0	2.2	-28.1	261.4	350.8	262.4	8.4E	
JAN 24	20 42 43.5	-18 -5-44.6	31.07629	30.09503	2.458	8.0	2.2	-28.1	246.5	350.6	262.4	4.5E	
JAN 28	20 43 20.6	-18 -3-25.2	31.07965	30.09491	0.447	8.0	2.2	-28.1	231.5	350.5	262.4	0.6E	
FEB 1	20 43 57.6	-18 -1 -5.4	31.07836	30.09478	-1.560	8.0	2.2	-28.1	216.6	350.4	262.4	3.3W	
FEB 5	20 44 34.5	-17-58-45.4	31.07244	30.09466	-3.566	8.0	2.2	-28.1	201.7	350.2	262.4	7.3W	
FEB 9	20 45 11.2	-17-56-25.7	31.06190	30.09453	-5.562	8.0	2.2	-28.1	186.8	350.1	262.5	11.2W	
FEB 13	20 45 47.5	-17-54 -7.3	31.04677	30.09440	-7.532	8.0	2.2	-28.1	171.9	350.0	262.5	15.1W	
FEB 17	20 46 23.2	-17-51-50.4	31.02714	30.09428	-9.462	8.0	2.2	-28.2	157.1	349.9	262.5	19.0W	
FEB 21	20 46 58.3	-17-49-35.5	31.00310	30.09415	-11.338	8.0	2.2	-28.2	142.3	349.7	262.5	22.8W	
FEB 25	20 47 32.6	-17-47-23.3	30.97481	30.09403	-13.150	8.0	2.2	-28.2	127.4	349.6	262.6	26.7W	
MAR 1	20 48 5.9	-17-45-14.4	30.94240	30.09390	-14.898	8.0	2.2	-28.2	112.6	349.5	262.6	30.6W	
MAR 5	20 48 38.2	-17-43 -9.0	30.90603	30.09378	-16.585	8.0	2.2	-28.2	97.8	349.4	262.6	34.5W	
MAR 9	20 49 9.4	-17-41 -7.7	30.86583	30.09365	-18.203	8.0	2.2	-28.2	83.1	349.3	262.6	38.4W	
MAR 13	20 49 39.3	-17-39-11.2	30.82199	30.09353	-19.737	8.0	2.2	-28.2	68.3	349.2	262.7	42.2W	
MAR 17	20 50 7.8	-17-37-19.8	30.77471	30.09341	-21.176	8.0	2.2	-28.2	53.6	349.1	262.7	46.1W	
MAR 21	20 50 34.8	-17-35-33.8	30.72424	30.09328	-22.508	8.0	2.2	-28.2	38.9	349.0	262.7	50.0W	
MAR 25	20 51 0.3	-17-33-53.9	30.67081	30.09316	-23.729	8.0	2.2	-28.2	24.2	348.9	262.7	53.8W	
MAR 29	20 51 24.1	-17-32-20.6	30.61469	30.09303	-24.840	8.0	2.2	-28.3	9.5	348.8	262.8	57.7W	
APR 2	20 51 46.1	-17-30-53.8	30.55612	30.09291	-25.847	7.9	2.2	-28.3	354.8	348.7	262.8	61.6W	
APR 6	20 52 6.4	-17-29-34.0	30.49535	30.09279	-26.745	7.9	2.2	-28.3	340.2	348.7	262.8	65.4W	
APR 10	20 52 24.8	-17-28-21.9	30.43264	30.09266	-27.522	7.9	2.2	-28.3	325.5	348.6	262.8	69.3W	
APR 14	20 52 41.2	-17-27-17.5	30.36829	30.09254	-28.168	7.9	2.2	-28.3	310.9	348.6	262.9	73.1W	
APR 18	20 52 55.7	-17-26-20.8	30.30260	30.09242	-28.677	7.9	2.3	-28.3	296.3	348.5	262.9	77.0W	
APR 22	20 53 8.1	-17-25-32.5	30.23590	30.09229	-29.048	7.9	2.3	-28.3	281.7	348.5	262.9	80.8W	
APR 26	20 53 18.4	-17-24-52.7	30.16849	30.09217	-29.289	7.9	2.3	-28.3	267.1	348.4	262.9	84.7W	
APR 30	20 53 26.7	-17-24-21.1	30.10067	30.09205	-29.407	7.9	2.3	-28.3	252.5	348.4	263.0	88.5W	
MAY 4	20 53 32.8	-17-23-58.0	30.03272	30.09192	-29.400	7.9	2.3	-28.3	238.0	348.4	263.0	92.4W	
MAY 8	20 53 36.8	-17-23-43.9	29.96493	30.09180	-29.258	7.9	2.3	-28.3	223.4	348.4	263.0	96.3W	
MAY 12	20 53 38.7	-17-23-38.2	29.89764	30.09168	-28.977	7.9	2.3	-28.3	208.8	348.4	263.0	100.1W	
MAY 16	20 53 38.5	-17-23-41.0	29.83116	30.09156	-28.554	7.9	2.3	-28.3	194.3	348.4	263.0	104.0W	
MAY 20	20 53 36.2	-17-23-52.6	29.76581	30.09144	-27.995	7.9	2.3	-28.3	179.8	348.4	263.1	107.8W	
MAY 24	20 53 31.8	-17-24-12.7	29.70190	30.09131	-27.311	7.9	2.3	-28.3	165.2	348.4	263.1	111.7W	
MAY 28	20 53 25.4	-17-24-40.7	29.63971	30.09119	-26.513	7.9	2.3	-28.3	150.7	348.4	263.1	115.6W	
JUN 1	20 53 17.0	-17-25-16.9	29.57949	30.09107	-25.599	7.9	2.3	-28.3	136.2	348.4	263.1	119.4W	
JUN 5	20 53 6.7	-17-26 -1.1	29.52152	30.09095	-24.565	7.9	2.3	-28.3	121.7	348.5	263.2	123.3W	
JUN 9	20 52 54.5	-17-26-52.6	29.46608	30.09083	-23.410	7.9	2.3	-28.3	107.1	348.5	263.2	127.2W	
JUN 13	20 52 40.6	-17-27-51.1	29.41345	30.09071	-22.137	7.9	2.3	-28.3	92.6	348.6	263.2	131.1W	
JUN 17	20 52 25.0	-17-28-56.8	29.36388	30.09059	-20.755	7.9	2.3	-28.3	78.1	348.6	263.2	135.0W	
JUN 21	20 52 7.7	-17-30 -8.8	29.31762	30.09047	-19.282	7.9	2.3	-28.3	63.6	348.7	263.3	138.9W	
JUN 25	20 51 49.0	-17-31-26.4	29.27485	30.09035	-17.728	7.9	2.3	-28.2	49.1	348.7	263.3	142.8W	
JUN 29	20 51 29.0	-17-32-49.7	29.23576	30.09023	-16.095	7.9	2.3	-28.2	34.5	348.8	263.3	146.7W	
JUL 3	20 51 7.6	-17-34-18.1	29.20054	30.09011	-14.382	7.8	2.3	-28.2	20.0	348.9	263.3	150.6W	
JUL 7	20 50 45.1	-17-35-50.7	29.16937	30.08998	-12.593	7.8	2.3	-28.2	5.4	349.0	263.4	154.5W	
JUL 11	20 50 21.7	-17-37-27.1	29.14241	30.08986	-10.733	7.8	2.3	-28.2	350.9	349.0	263.4	158.4W	
JUL 15	20 49 57.3	-17-39 -7.1	29.11981	30.08974	-8.817	7.8	2.3	-28.2	336.3	349.1	263.4	162.3W	
JUL 19	20 49 32.3	-17-40-49.6	29.10169	30.08963	-6.865	7.8	2.3	-28.2	321.7	349.2	263.4	166.2W	
JUL 23	20 49 6.7	-17-42-34.0	29.08811	30.08951	-4.888	7.8	2.3	-28.2	307.1	349.3	263.5	170.1W	
JUL 27	20 48 40.7	-17-44-20.0	29.07912	30.08939	-2.889	7.8	2.3	-28.2	292.5	349.4	263.5	174.1W	
JUL 31	20 48 14.4	-17-46 -6.9	29.07477	30.08927	-0.870	7.8	2.3	-28.2	277.9	349.5	263.5	178.0W	
AUG 4	20 47 48.0	-17-47-53.7	29.07511	30.08915	1.164	7.8	2.3	-28.2	263.3	349.6	263.5	178.1E	
AUG 8	20 47 21.7	-17-49-40.1	29.08015	30.08903	3.204	7.8	2.3	-28.1	248.7	349.7	263.6	174.1E	
AUG 12	20 46 55.6	-17-51-25.7	29.08989	30.08891	5.232	7.8	2.3	-28.1	234.0	349.8	263.6	170.2E	
AUG 16	20 46 29.9	-17-53 -9.4	29.10429	30.08879	7.229	7.8	2.3	-28.1	219.3	349.8	263.6	166.2E	
AUG 20	20 46 4.8	-17-54-50.6	29.12326	30.08867	9.185	7.8	2.3	-28.1	204.6	349.9	263.6	162.3E	
AUG 24	20 45 40.3	-17-56-29.1	29.14669	30.08855	11.097	7.8	2.3	-28.1	189.9	350.0	263.6	158.3E	
AUG 28	20 45 16.7	-17-58 -4.2	29.17449	30.08843	12.963	7.8	2.3	-28.1	175.2	350.1	263.7	154.4E	
SEP 1	20 44 54.1	-17-59-35.0	29.20654	30.08832	14.778	7.8	2.3	-28.1	160.5	350.2	263.7	150.4E	
SEP 5	20 44 32.6	-18 -1 -1.4	29.24272	30.08820	16.532	7.9	2.3	-28.1	145.7	350.3	263.7	146.5E	
SEP 9	20 44 12.3	-18 -2-22.9	29.28286	30.08808	18.208	7.9	2.3	-28.1	130.9	350.3	263.7	142.5E	
SEP 13	20 43 53.5	-18 -3-38.6	29.32676	30.08796	19.788	7.9	2.3	-28.1	116.1	350.4	263.8	138.5E	
SEP 17	20 43 36.2	-18 -4-48.3	29.37420	30.08784	21.266	7.9	2.3	-28.1	101.3	350.4	263.8	134.6E	
SEP 21	20 43 20.6	-18 -5-51.9	29.42494	30.08772	22.643	7.9	2.3	-28.0	86.5	350.5	263.8	130.6E	
SEP 25	20 43 6.6	-18 -6-48.6	29.47874	30.08761	23.919	7.9	2.3	-28.0	71.6	350.6	263.8	126.6E	
SEP 29	20 42 54.5	-18 -7-38.1	29.53537	30.08749	25.089	7.9	2.3	-28.0	56.8	350.6	263.9	122.6E	
OCT 3	20 42 44.4	-18 -8-20.3	29.59457	30.08737	26.146	7.9	2.3	-28.0	41.9	350.6	263.9	118.7E	
OCT 7	20 42 36.1	-18 -8-55.1	29.65607	30.08725	27.077	7.9	2.3	-28.0	27.0	350.7	263.9	114.7E	
OCT 11	20 42 30.0	-18 -9-21.6	29.71957	30.08714	27.867	7.9	2.3	-28.0	12.1	350.7	263.9	110.7E	
OCT 15	20 42 26.0	-18 -9-40.1	29.78472	30.08702	28.516	7.9	2.3	-28.0	357.1	350.7	264.0	106.7E	
OCT 19	20 42 24.2	-18 -9-50.6	29.85121	30.08690	29.030	7.9	2.3	-28.0	342.2	350.7	264.0	102.8E	
OCT 23	20 42 24.5	-18 -9-52.6	29.91874	30.08678	29.412	7.9	2.3	-28.0	327.2	350.7	264.0	98.8E	
OCT 27	20 42 27.0	-18 -9-46.0	29.98700	30.08667	29.661	7.9	2.3	-28.0	312.3	350.7	264.0	94.8E	
OCT 31	20 42 31.7	-18 -9-31.3	30.05568	30.08655	29.773	7.9	2.3	-28.0	297.3	350.7	264.1	90.8E	
NOV 4	20 42 38.6	-18 -9 -8.1	30.12446	30.08643	29.740	7.9	2.3	-28.0	282.3	350.6	264.1	86.9E	
NOV 8	20 42 47.7	-18 -8-36.1	30.19298	30.08632	29.553	7.9	2.3	-28.0	267.3	350.6	264.1	82.9E	
NOV 12	20 42 59.0	-18 -7-56.0	30.26089	30.08620	29.218	7.9	2.3	-28.0	252.3	350.6	264.1	78.9E	
NOV 16	20 43 12.5	-18 -7 -7.7	30.32787	30.08609	28.746	7.9	2.3	-28.0	237.2	350.5	264.2	74.9E	
NOV 20	20 43 28.0	-18 -6-11.2	30.39361	30.08597	28.145	7.9	2.2	-28.0	222.2	350.5	264.2	71.0E	
NOV 24	20 43 45.5	-18 -5 -6.6	30.45781	30.08585	27.417	7.9	2.2	-28.0	207.2	350.4	264.2	67.0E	
NOV 28	20 44 5.0	-18 -3-54.6	30.52019	30.08574	26.564	7.9	2.2	-28.0	192.2	350.3	264.2	63.0E	
DEC 2	20 44 26.4	-18 -2-35.0	30.5										

Date (0 DT)	RA [Mean] (h m s)	Dec (° ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	20 48 15.0	-17-48 -5.5	30.95384	30.08470	13.832	8.0	2.2	-28.1	56.9	349.5	264.4	27.5E
JAN 7	20 48 49.1	-17-45-53.7	30.98368	30.08459	11.986	8.0	2.2	-28.1	41.9	349.4	264.5	23.5E
JAN 11	20 49 23.9	-17-43-38.3	31.00919	30.08448	10.090	8.0	2.2	-28.2	26.9	349.2	264.5	19.6E
JAN 15	20 49 59.4	-17-41-19.6	31.03027	30.08436	8.158	8.0	2.2	-28.2	12.0	349.1	264.5	15.7E
JAN 19	20 50 35.5	-17-38-58.3	31.04687	30.08425	6.198	8.0	2.2	-28.2	357.0	349.0	264.5	11.7E
JAN 23	20 51 12.0	-17-36-35.2	31.05890	30.08414	4.213	8.0	2.2	-28.2	342.0	348.9	264.6	7.8E
JAN 27	20 51 48.7	-17-34-10.3	31.06632	30.08402	2.204	8.0	2.2	-28.2	327.1	348.7	264.6	3.9E
JAN 31	20 52 25.6	-17-31-44.2	31.06907	30.08391	0.177	8.0	2.2	-28.2	312.2	348.6	264.6	0.0W
FEB 4	20 53 2.4	-17-29-18.0	31.06714	30.08380	-1.850	8.0	2.2	-28.2	297.2	348.5	264.6	3.9W
FEB 8	20 53 39.1	-17-26-51.8	31.06054	30.08368	-3.861	8.0	2.2	-28.2	282.3	348.4	264.7	7.8W
FEB 12	20 54 15.5	-17-24-26.1	31.04933	30.08357	-5.842	8.0	2.2	-28.2	267.5	348.2	264.7	11.7W
FEB 16	20 54 51.5	-17-22 -1.7	31.03359	30.08346	-7.786	8.0	2.2	-28.3	252.6	348.1	264.7	15.6W
FEB 20	20 55 26.9	-17-19-39.3	31.01339	30.08335	-9.691	8.0	2.2	-28.3	237.7	348.0	264.7	19.5W
FEB 24	20 56 1.7	-17-17-19.0	30.98884	30.08324	-11.559	8.0	2.2	-28.3	222.9	347.9	264.8	23.4W
FEB 28	20 56 35.6	-17-15 -1.5	30.96003	30.08312	-13.379	8.0	2.2	-28.3	208.1	347.8	264.8	27.3W
MAR 4	20 57 8.6	-17-12-47.7	30.92708	30.08301	-15.137	8.0	2.2	-28.3	193.3	347.6	264.8	31.2W
MAR 8	20 57 40.6	-17-10-37.7	30.89016	30.08290	-16.817	8.0	2.2	-28.3	178.5	347.5	264.8	35.0W
MAR 12	20 58 11.4	-17 -8-32.1	30.84945	30.08279	-18.410	8.0	2.2	-28.3	163.7	347.4	264.8	38.9W
MAR 16	20 58 40.9	-17 -6-31.6	30.80517	30.08268	-19.910	8.0	2.2	-28.3	149.0	347.3	264.9	42.8W
MAR 20	20 59 9.0	-17 -4-36.7	30.75754	30.08257	-21.318	8.0	2.2	-28.3	134.3	347.2	264.9	46.6W
MAR 24	20 59 35.7	-17 -2-47.4	30.70674	30.08246	-22.639	8.0	2.2	-28.3	119.5	347.1	264.9	50.5W
MAR 28	21 0 0.8	-17 -1 -4.4	30.65301	30.08234	-23.864	8.0	2.2	-28.3	104.8	347.0	264.9	54.4W
APR 1	21 0 24.3	-16-59-28.4	30.59657	30.08223	-24.979	7.9	2.2	-28.3	90.2	347.0	265.0	58.2W
APR 5	21 0 46.0	-16-57-59.4	30.53770	30.08212	-25.972	7.9	2.2	-28.3	75.5	346.9	265.0	62.1W
APR 9	21 1 5.9	-16-56-37.7	30.47667	30.08201	-26.839	7.9	2.2	-28.3	60.8	346.8	265.0	65.9W
APR 13	21 1 23.9	-16-55-24.1	30.41379	30.08190	-27.578	7.9	2.2	-28.3	46.2	346.8	265.0	69.6W
APR 17	21 1 40.0	-16-54-18.6	30.34935	30.08179	-28.193	7.9	2.3	-28.4	31.6	346.7	265.1	73.6W
APR 21	21 1 54.1	-16-53-21.1	30.28362	30.08168	-28.692	7.9	2.3	-28.4	17.0	346.7	265.1	77.5W
APR 25	21 2 6.2	-16-52-32.2	30.21688	30.08157	-29.068	7.9	2.3	-28.4	2.4	346.6	265.1	81.3W
APR 29	21 2 16.3	-16-51-52.3	30.14942	30.08146	-29.310	7.9	2.3	-28.4	347.8	346.6	265.1	85.2W
MAY 3	21 2 24.2	-16-51-21.0	30.08156	30.08135	-29.412	7.9	2.3	-28.4	333.2	346.5	265.2	89.0W
MAY 7	21 2 30.0	-16-50-58.6	30.01363	30.08124	-29.372	7.9	2.3	-28.4	318.6	346.5	265.2	92.9W
MAY 11	21 2 33.8	-16-50-45.4	29.94596	30.08113	-29.193	7.9	2.3	-28.4	304.1	346.5	265.2	96.7W
MAY 15	21 2 35.4	-16-50-41.2	29.87885	30.08102	-28.886	7.9	2.3	-28.4	289.5	346.5	265.2	100.6W
MAY 19	21 2 34.9	-16-50-45.6	29.81259	30.08092	-28.459	7.9	2.3	-28.4	275.0	346.5	265.3	104.4W
MAY 23	21 2 32.4	-16-50-59.1	29.74745	30.08081	-27.907	7.9	2.3	-28.4	260.4	346.5	265.3	108.3W
MAY 27	21 2 27.8	-16-51-21.4	29.68374	30.08070	-27.224	7.9	2.3	-28.4	245.9	346.5	265.3	112.2W
MAY 31	21 2 21.2	-16-51-52.1	29.62177	30.08059	-26.409	7.9	2.3	-28.4	231.4	346.6	265.3	116.0W
JUN 4	21 2 12.6	-16-52-31.1	29.56182	30.08048	-25.463	7.9	2.3	-28.3	216.9	346.6	265.4	119.9W
JUN 8	21 2 2.2	-16-53-18.5	29.50421	30.08037	-24.397	7.9	2.3	-28.3	202.3	346.6	265.4	123.8W
JUN 12	21 1 49.9	-16-54-13.5	29.44918	30.08026	-23.223	7.9	2.3	-28.3	187.8	346.7	265.4	127.6W
JUN 16	21 1 35.8	-16-55-15.5	29.39698	30.08015	-21.952	7.9	2.3	-28.3	173.3	346.7	265.4	131.5W
JUN 20	21 1 20.2	-16-56-24.9	29.34783	30.08005	-20.583	7.9	2.3	-28.3	158.8	346.8	265.4	135.4W
JUN 24	21 1 2.9	-16-57-40.9	29.30195	30.07994	-19.111	7.9	2.3	-28.3	144.3	346.8	265.5	139.3W
JUN 28	21 0 44.1	-16-59 -2.8	29.25960	30.07983	-17.541	7.9	2.3	-28.3	129.7	346.9	265.5	143.2W
JUL 2	21 0 24.0	-17 0-30.4	29.22097	30.07972	-15.880	7.8	2.3	-28.3	115.2	347.0	265.5	147.1W
JUL 6	21 0 2.6	-17 -2 -3.3	29.18628	30.07961	-14.141	7.8	2.3	-28.3	100.7	347.0	265.5	151.0W
JUL 10	20 59 40.1	-17 -3-40.5	29.15568	30.07951	-12.341	7.8	2.3	-28.3	86.1	347.1	265.6	154.9W
JUL 14	20 59 16.8	-17 -5-21.5	29.12929	30.07940	-10.491	7.8	2.3	-28.3	71.6	347.2	265.6	158.8W
JUL 18	20 58 52.5	-17 -7 -6.0	29.10723	30.07929	-8.592	7.8	2.3	-28.3	57.0	347.3	265.6	162.7W
JUL 22	20 58 27.5	-17 -8-53.2	29.08962	30.07918	-6.644	7.8	2.3	-28.3	42.4	347.4	265.6	166.6W
JUL 26	20 58 2.0	-17-10-42.3	29.07656	30.07908	-4.653	7.8	2.3	-28.3	27.8	347.5	265.7	170.6W
JUL 30	20 57 36.1	-17-12-32.9	29.06814	30.07897	-2.631	7.8	2.3	-28.3	13.2	347.5	265.7	174.5W
AUG 3	20 57 9.9	-17-14-24.5	29.06441	30.07886	-0.593	7.8	2.3	-28.3	358.6	347.6	265.7	178.4W
AUG 7	20 56 43.7	-17-16-15.8	29.06539	30.07876	1.441	7.8	2.3	-28.3	344.0	347.7	265.7	177.6E
AUG 11	20 56 17.6	-17-18 -6.5	29.07106	30.07865	3.463	7.8	2.3	-28.2	329.3	347.8	265.8	173.7E
AUG 15	20 55 51.7	-17-19-56.2	29.08137	30.07854	5.469	7.8	2.3	-28.2	314.7	347.9	265.8	169.7E
AUG 19	20 55 26.2	-17-21-44.0	29.09631	30.07844	7.459	7.8	2.3	-28.2	300.0	348.0	265.8	165.8E
AUG 23	20 55 1.2	-17-23-29.0	29.11581	30.07833	9.425	7.8	2.3	-28.2	285.3	348.1	265.8	161.8E
AUG 27	20 54 37.0	-17-25-11.2	29.13982	30.07823	11.354	7.8	2.3	-28.2	270.6	348.2	265.9	157.9E
AUG 31	20 54 13.6	-17-26-49.7	29.16822	30.07812	13.229	7.8	2.3	-28.2	255.9	348.2	265.9	153.9E
SEP 4	20 53 51.2	-17-28-23.6	29.20088	30.07801	15.033	7.8	2.3	-28.2	241.1	348.3	265.9	149.9E
SEP 8	20 53 30.0	-17-29-52.7	29.23762	30.07791	16.759	7.9	2.3	-28.2	226.4	348.4	265.9	146.0E
SEP 12	20 53 10.1	-17-31-16.7	29.27825	30.07780	18.408	7.9	2.3	-28.2	211.6	348.5	266.0	142.0E
SEP 16	20 52 51.5	-17-32-34.6	29.32260	30.07770	19.977	7.9	2.3	-28.2	196.8	348.5	266.0	138.0E
SEP 20	20 52 34.5	-17-33-46.1	29.37048	30.07759	21.460	7.9	2.3	-28.2	182.0	348.6	266.0	134.1E
SEP 24	20 52 19.2	-17-34-51.1	29.42168	30.07749	22.847	7.9	2.3	-28.2	167.1	348.6	266.0	130.1E
SEP 28	20 52 5.5	-17-35-49.1	29.47595	30.07738	24.121	7.9	2.3	-28.2	152.3	348.7	266.0	126.1E
OCT 2	20 51 53.7	-17-36-39.2	29.53303	30.07728	25.270	7.9	2.3	-28.2	137.4	348.7	266.1	122.1E
OCT 6	20 51 43.9	-17-37-21.6	29.59261	30.07717	26.290	7.9	2.3	-28.2	122.5	348.8	266.1	118.2E
OCT 10	20 51 36.0	-17-37-56.2	29.65440	30.07707	27.188	7.9	2.3	-28.2	107.6	348.8	266.1	114.2E
OCT 14	20 51 30.1	-17-38-22.2	29.71813	30.07697	27.964	7.9	2.3	-28.1	92.7	348.8	266.1	110.2E
OCT 18	20 51 26.4	-17-38-39.8	29.78351	30.07686	28.613	7.9	2.3	-28.1	77.8	348.8	266.2	106.2E
OCT 22	20 51 24.8	-17-38-48.9	29.85023	30.07676	29.129	7.9	2.3	-28.1	62.8	348.8	266.2	102.2E
OCT 26	20 51 25.4	-17-38-49.3	29.91798	30.07665	29.501	7.9	2.3	-28.1	47.9	348.8	266.2	98.2E
OCT 30	20 51 28.2	-17-38-40.5	29.98642	30.07655	29.719	7.9	2.3	-28.1	32.9	348.8	266.2	94.3E
NOV 3	20 51 33.2	-17-38-23.1	30.05518	30.07645	29.790	7.9	2.3	-28.1	17.9	348.8	266.3	90.3E
NOV 7	20 51 40.4	-17-37-56.9	30.12395	30.07634	29.722	7.9	2.3	-28.1	2.9	348.8	266.3	86.3E
NOV 11	20 51 49.7	-17-37-21.7	30.19241	30.07624	29.520	7.9	2.3	-28.1	347.9	348.7	266.3	82.3E
NOV 15	20 52 1.2	-17-36-37.8	30.26024	30.07613	29.183	7.9	2.3	-28.2	332.9	348.7	266.3	78.4E
NOV 19	20 52 14.9	-17-35-45.6	30.32714	30.07603	28.710	7.9	2.3	-28.2	317.9	348.7	266.4	74.4E
NOV 23	20 52 30.5	-17-34-44.8	30.39278	30.07593	28.095	7.9	2.2	-28.2	302.8	348.6	266.4	70.4E
NOV 27	20 52 48.3	-17-33-35.4	30.45684	30.07582	27.333	7.9	2.2	-28.2	287.8	348.5	266.4	66.4E
DEC 1	20 53 8.0	-17-32-18.3	30.51897	30.075								

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 2	20 56 45.2	-17-17-49.6	30.91520	30.07490	15.350	8.0	2.2	-28.2	152.5	347.7	266.6	30.8E	
JAN 6	20 57 18.3	-17-15-35.3	30.94862	30.07480	13.571	8.0	2.2	-28.2	137.5	347.6	266.6	26.9E	
JAN 10	20 57 52.2	-17-13-17.0	30.97786	30.07470	11.737	8.0	2.2	-28.2	122.5	347.5	266.7	22.9E	
JAN 14	20 58 27.0	-17-10-55.2	31.00281	30.07460	9.850	8.0	2.2	-28.3	107.6	347.4	266.7	19.0E	
JAN 18	20 59 2.3	-17 -8-29.9	31.02334	30.07450	7.912	8.0	2.2	-28.3	92.6	347.3	266.7	15.1E	
JAN 22	20 59 38.3	-17 -6 -2.0	31.03934	30.07439	5.930	8.0	2.2	-28.3	77.6	347.1	266.7	11.2E	
JAN 26	21 0 14.6	-17 -3-32.3	31.05072	30.07429	3.921	8.0	2.2	-28.3	62.7	347.0	266.8	7.2E	
JAN 30	21 0 51.1	-17 -1 -1.1	31.05745	30.07419	1.905	8.0	2.2	-28.3	47.7	346.9	266.8	3.3E	
FEB 3	21 1 27.8	-16-58-28.8	31.05953	30.07409	-0.108	8.0	2.2	-28.3	32.8	346.7	266.8	0.6W	
FEB 7	21 2 4.4	-16-55-56.4	31.05697	30.07399	-2.112	8.0	2.2	-28.3	17.9	346.6	266.8	4.5W	
FEB 11	21 2 40.8	-16-53-24.4	31.04979	30.07389	-4.105	8.0	2.2	-28.3	3.0	346.5	266.9	8.4W	
FEB 15	21 3 16.9	-16-50-52.9	31.03802	30.07379	-6.084	8.0	2.2	-28.3	348.1	346.4	266.9	12.3W	
FEB 19	21 3 52.7	-16-48-22.8	31.02170	30.07369	-8.041	8.0	2.2	-28.3	333.2	346.3	266.9	16.2W	
FEB 23	21 4 27.8	-16-45-55.0	31.00090	30.07359	-9.958	8.0	2.2	-28.3	318.4	346.1	266.9	20.1W	
FEB 27	21 5 2.2	-16-43-29.6	30.97574	30.07349	-11.819	8.0	2.2	-28.3	303.5	346.0	267.0	23.9W	
MAR 2	21 5 35.8	-16-41 -7.3	30.94635	30.07339	-13.614	8.0	2.2	-28.3	288.7	345.9	267.0	27.8W	
MAR 6	21 6 8.5	-16-38-48.9	30.91290	30.07329	-15.340	8.0	2.2	-28.3	273.9	345.8	267.0	31.7W	
MAR 10	21 6 40.1	-16-36-34.8	30.87553	30.07319	-16.996	8.0	2.2	-28.4	259.1	345.7	267.0	35.6W	
MAR 14	21 7 10.5	-16-34-25.1	30.83443	30.07309	-18.582	8.0	2.2	-28.4	244.4	345.6	267.1	39.4W	
MAR 18	21 7 39.7	-16-32-20.7	30.78974	30.07299	-20.089	8.0	2.2	-28.4	229.6	345.5	267.1	43.3W	
MAR 22	21 8 7.5	-16-30-22.4	30.74169	30.07289	-21.502	8.0	2.2	-28.4	214.9	345.4	267.1	47.2W	
MAR 26	21 8 33.8	-16-28-30.0	30.69049	30.07279	-22.806	8.0	2.2	-28.4	200.2	345.3	267.1	51.0W	
MAR 30	21 8 58.6	-16-26-44.3	30.63640	30.07269	-23.999	8.0	2.2	-28.4	185.5	345.2	267.2	54.9W	
APR 3	21 9 21.7	-16-25 -5.9	30.57969	30.07259	-25.077	7.9	2.2	-28.4	170.8	345.1	267.2	58.7W	
APR 7	21 9 43.0	-16-23-35.0	30.52062	30.07249	-26.045	7.9	2.2	-28.4	156.1	345.0	267.2	62.6W	
APR 11	21 10 2.6	-16-22-11.6	30.45944	30.07240	-26.905	7.9	2.2	-28.4	141.5	345.0	267.2	66.4W	
APR 15	21 10 20.3	-16-20-56.5	30.39641	30.07230	-27.649	7.9	2.2	-28.4	126.8	344.9	267.2	70.3W	
APR 19	21 10 36.0	-16-19-49.9	30.33180	30.07220	-28.264	7.9	2.3	-28.4	112.2	344.9	267.3	74.1W	
APR 23	21 10 49.8	-16-18-51.8	30.26592	30.07210	-28.743	7.9	2.3	-28.4	97.6	344.8	267.3	77.9W	
APR 27	21 11 1.6	-16-18 -2.6	30.19910	30.07200	-29.084	7.9	2.3	-28.4	83.0	344.8	267.3	81.8W	
MAY 1	21 11 11.3	-16-17-22.8	30.13165	30.07191	-29.290	7.9	2.3	-28.4	68.4	344.7	267.3	85.6W	
MAY 5	21 11 18.9	-16-16-52.0	30.06387	30.07181	-29.368	7.9	2.3	-28.4	53.9	344.7	267.4	89.5W	
MAY 9	21 11 24.5	-16-16-30.2	29.99605	30.07171	-29.325	7.9	2.3	-28.4	39.3	344.7	267.4	93.3W	
MAY 13	21 11 28.0	-16-16-18.0	29.92847	30.07161	-29.154	7.9	2.3	-28.4	24.7	344.7	267.4	97.2W	
MAY 17	21 11 29.4	-16-16-15.1	29.86145	30.07152	-28.845	7.9	2.3	-28.4	10.2	344.7	267.4	101.0W	
MAY 21	21 11 28.7	-16-16-21.3	29.79531	30.07142	-28.396	7.9	2.3	-28.4	355.7	344.7	267.5	104.9W	
MAY 25	21 11 25.9	-16-16-36.8	29.73035	30.07132	-27.810	7.9	2.3	-28.4	341.1	344.7	267.5	108.7W	
MAY 29	21 11 21.1	-16-17 -1.5	29.66691	30.07122	-27.096	7.9	2.3	-28.4	326.6	344.7	267.5	112.6W	
JUN 2	21 11 14.3	-16-17-34.9	29.60525	30.07113	-26.263	7.9	2.3	-28.4	312.1	344.7	267.5	116.5W	
JUN 6	21 11 5.7	-16-18-16.6	29.54565	30.07103	-25.320	7.9	2.3	-28.4	297.5	344.8	267.6	120.3W	
JUN 10	21 10 55.1	-16-19 -6.9	29.48835	30.07093	-24.264	7.9	2.3	-28.4	283.0	344.8	267.6	124.2W	
JUN 14	21 10 42.6	-16-20 -5.1	29.43363	30.07084	-23.088	7.9	2.3	-28.4	268.5	344.8	267.6	128.1W	
JUN 18	21 10 28.5	-16-21-10.8	29.38176	30.07074	-21.796	7.9	2.3	-28.4	254.0	344.9	267.6	132.0W	
JUN 22	21 10 12.7	-16-22-24.0	29.33300	30.07064	-20.395	7.9	2.3	-28.4	239.5	344.9	267.7	135.8W	
JUN 26	21 9 55.3	-16-23-44.0	29.28759	30.07055	-18.898	7.9	2.3	-28.4	224.9	345.0	267.7	139.7W	
JUN 30	21 9 36.5	-16-25-10.0	29.24574	30.07045	-17.318	7.9	2.3	-28.4	210.4	345.1	267.7	143.6W	
JUL 4	21 9 16.5	-16-26-41.6	29.20763	30.07036	-15.667	7.8	2.3	-28.4	195.9	345.1	267.7	147.5W	
JUL 8	21 8 55.1	-16-28-18.8	29.17341	30.07026	-13.941	7.8	2.3	-28.3	181.3	345.2	267.8	151.4W	
JUL 12	21 8 32.7	-16-30 -0.3	29.14326	30.07016	-12.140	7.8	2.3	-28.3	166.8	345.3	267.8	155.3W	
JUL 16	21 8 9.3	-16-31-45.8	29.11736	30.07007	-10.271	7.8	2.3	-28.3	152.2	345.4	267.8	159.2W	
JUL 20	21 7 45.1	-16-33-34.9	29.09585	30.06997	-8.346	7.8	2.3	-28.3	137.7	345.5	267.8	163.2W	
JUL 24	21 7 20.1	-16-35-26.7	29.07883	30.06988	-6.379	7.8	2.3	-28.3	123.1	345.5	267.8	167.1W	
JUL 28	21 6 54.7	-16-37-20.3	29.06639	30.06978	-4.387	7.8	2.3	-28.3	108.5	345.6	267.9	171.0W	
AUG 1	21 6 29.0	-16-39-15.2	29.05856	30.06968	-2.382	7.8	2.4	-28.3	93.9	345.7	267.9	174.9W	
AUG 5	21 6 3.0	-16-41-11.0	29.05539	30.06959	-0.362	7.8	2.4	-28.3	79.3	345.8	267.9	178.9W	
AUG 9	21 5 36.9	-16-43 -6.7	29.05689	30.06949	1.672	7.8	2.4	-28.3	64.6	345.9	267.9	177.2E	
AUG 13	21 5 10.9	-16-45 -1.5	29.06311	30.06940	3.709	7.8	2.3	-28.3	50.0	346.0	268.0	173.2E	
AUG 17	21 4 45.2	-16-46-55.3	29.07402	30.06930	5.735	7.8	2.3	-28.3	35.3	346.1	268.0	169.3E	
AUG 21	21 4 19.9	-16-48-47.0	29.08958	30.06921	7.735	7.8	2.3	-28.3	20.7	346.2	268.0	165.3E	
AUG 25	21 3 55.2	-16-50-35.7	29.10972	30.06911	9.691	7.8	2.3	-28.3	6.0	346.2	268.0	161.4E	
AUG 29	21 3 31.2	-16-52-21.1	29.13431	30.06902	11.595	7.8	2.3	-28.3	351.2	346.3	268.1	157.4E	
SEP 2	21 3 8.1	-16-54 -2.7	29.16324	30.06892	13.447	7.8	2.3	-28.3	336.5	346.4	268.1	153.4E	
SEP 6	21 2 45.9	-16-55-39.5	29.19640	30.06883	15.247	7.8	2.3	-28.3	321.8	346.5	268.1	149.5E	
SEP 10	21 2 25.0	-16-57-11.2	29.23364	30.06873	16.984	7.8	2.3	-28.3	307.0	346.6	268.1	145.5E	
SEP 14	21 2 5.3	-16-58-37.5	29.27481	30.06864	18.644	7.9	2.3	-28.3	292.2	346.6	268.2	141.5E	
SEP 18	21 1 47.0	-16-59-57.5	29.31971	30.06854	20.212	7.9	2.3	-28.3	277.4	346.7	268.2	137.5E	
SEP 22	21 1 30.3	-17 -1-10.6	29.36811	30.06845	21.674	7.9	2.3	-28.2	262.6	346.7	268.2	133.6E	
SEP 26	21 1 15.3	-17 -2-16.7	29.41976	30.06835	23.027	7.9	2.3	-28.2	247.8	346.8	268.2	129.6E	
SEP 30	21 1 1.9	-17 -3-15.4	29.47442	30.06826	24.273	7.9	2.3	-28.2	232.9	346.8	268.3	125.6E	
OCT 4	21 0 50.4	-17 -4 -6.1	29.53183	30.06816	25.413	7.9	2.3	-28.2	218.0	346.9	268.3	121.6E	
OCT 8	21 0 40.8	-17 -4-48.6	29.59174	30.06807	26.439	7.9	2.3	-28.2	203.2	346.9	268.3	117.6E	
OCT 12	21 0 33.2	-17 -5-23.0	29.65389	30.06798	27.339	7.9	2.3	-28.2	188.2	346.9	268.3	113.6E	
OCT 16	21 0 27.7	-17 -5-48.5	29.71795	30.06788	28.103	7.9	2.3	-28.2	173.3	347.0	268.4	109.7E	
OCT 20	21 0 24.3	-17 -6 -4.8	29.78362	30.06779	28.722	7.9	2.3	-28.2	158.4	347.0	268.4	105.7E	
OCT 24	21 0 23.0	-17 -6-12.4	29.85055	30.06769	29.197	7.9	2.3	-28.2	143.4	347.0	268.4	101.7E	
OCT 28	21 0 23.9	-17 -6-10.8	29.91842	30.06760	29.537	7.9	2.3	-28.2	128.5	347.0	268.4	97.7E	
NOV 1	21 0 26.9	-17 -5-59.8	29.98692	30.06751	29.745	7.9	2.3	-28.2	113.5	347.0	268.4	93.7E	
NOV 5	21 0 32.2	-17 -5-39.8	30.05574	30.06741	29.816	7.9	2.3	-28.2	98.5	346.9	268.5	89.7E	
NOV 9	21 0 39.6	-17 -5-10.7	30.12457	30.06732	29.745	7.9	2.3	-28.2	83.5	346.9	268.5	85.8E	
NOV 13	21 0 49.1	-17 -4-32.2	30.19306	30.06723	29.524	7.9	2.3	-28.2	68.5	346.9	268.5	81.8E	
NOV 17	21 1 0.9	-17 -3-44.4	30.26087	30.06714	29.151	7.9	2.3	-28.2	53.5	346.8	268.5	77.8E	
NOV 21	21 1 14.8	-17 -2-48.0	30.32764	30.06704	28.636	7.9	2.3	-28.2	38.5	346.8	268.6	73.8E	
NOV 25	21 1 30.6	-17 -1-42.8	30.39308	30.06695	27.990	7.9	2.2	-28.2	23.5	346.7	268.6	69.8E	
NOV 29	21 1 48.5	-17 0-28.9	30.45687	30.06686	27.220	7.9	2.2	-28.2					

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	21 5 45.9	-16-43-51.9	30.91159	30.06603	15.132	8.0	2.2	-28.3	233.2	345.9	268.8	30.2E	
JAN 8	21 6 18.9	-16-41-31.3	30.94449	30.06594	13.340	8.0	2.2	-28.3	218.2	345.8	268.9	26.3E	
JAN 12	21 6 52.8	-16-39-6.4	30.97318	30.06584	11.477	8.0	2.2	-28.3	203.2	345.6	268.9	22.3E	
JAN 16	21 7 27.5	-16-36-38.1	30.99749	30.06575	9.564	8.0	2.2	-28.3	188.2	345.5	268.9	18.4E	
JAN 20	21 8 2.7	-16-34-6.6	31.01735	30.06566	7.619	8.0	2.2	-28.3	173.2	345.4	268.9	14.5E	
JAN 24	21 8 38.5	-16-31-32.5	31.03268	30.06557	5.649	8.0	2.2	-28.3	158.2	345.3	269.0	10.6E	
JAN 28	21 9 14.6	-16-28-56.7	31.04344	30.06548	3.659	8.0	2.2	-28.3	143.3	345.2	269.0	6.7E	
FEB 1	21 9 50.9	-16-26-19.5	31.04958	30.06539	1.654	8.0	2.2	-28.3	128.3	345.0	269.0	2.7E	
FEB 5	21 10 27.3	-16-23-41.2	31.05107	30.06530	-0.365	8.0	2.2	-28.3	113.4	344.9	269.0	1.2W	
FEB 9	21 11 3.7	-16-21-2.8	31.04790	30.06521	-2.387	8.0	2.2	-28.3	98.5	344.8	269.0	5.1W	
FEB 13	21 11 39.9	-16-18-25.1	31.04006	30.06512	-4.394	8.0	2.2	-28.3	83.6	344.7	269.1	9.0W	
FEB 17	21 12 15.8	-16-15-48.1	31.02763	30.06503	-6.367	8.0	2.2	-28.3	68.7	344.5	269.1	12.8W	
FEB 21	21 12 51.2	-16-13-12.9	31.01068	30.06493	-8.299	8.0	2.2	-28.3	53.9	344.4	269.1	16.7W	
FEB 25	21 13 26.0	-16-10-40.1	30.98932	30.06484	-10.188	8.0	2.2	-28.3	39.0	344.3	269.1	20.6W	
MAR 1	21 14 0.1	-16-8-10.0	30.96365	30.06475	-12.031	8.0	2.2	-28.4	24.2	344.2	269.2	24.5W	
MAR 5	21 14 33.4	-16-5-43.0	30.93378	30.06466	-13.825	8.0	2.2	-28.4	9.4	344.1	269.2	28.4W	
MAR 9	21 15 5.7	-16-3-20.2	30.89982	30.06457	-15.561	8.0	2.2	-28.4	354.6	344.0	269.2	32.2W	
MAR 13	21 15 37.0	-16-1-1.9	30.86195	30.06448	-17.220	8.0	2.2	-28.4	339.8	343.8	269.2	36.1W	
MAR 17	21 16 7.1	-15-53-48.5	30.82034	30.06439	-18.789	8.0	2.2	-28.4	325.0	343.7	269.3	40.0W	
MAR 21	21 16 35.9	-15-50-40.8	30.77521	30.06430	-20.263	8.0	2.2	-28.4	310.3	343.6	269.3	43.8W	
MAR 25	21 17 3.3	-15-54-39.4	30.72679	30.06421	-21.642	8.0	2.2	-28.4	295.5	343.6	269.3	47.7W	
MAR 29	21 17 29.3	-15-52-44.4	30.67529	30.06412	-22.926	8.0	2.2	-28.4	280.8	343.5	269.3	51.5W	
APR 2	21 17 53.7	-15-50-56.1	30.62094	30.06403	-24.115	8.0	2.2	-28.4	266.1	343.4	269.4	55.4W	
APR 6	21 18 16.5	-15-49-15.4	30.56396	30.06394	-25.199	7.9	2.2	-28.4	251.5	343.3	269.4	59.2W	
APR 10	21 18 37.4	-15-47-42.6	30.50460	30.06385	-26.165	7.9	2.2	-28.4	236.8	343.2	269.4	63.1W	
APR 14	21 18 56.7	-15-46-17.7	30.44317	30.06376	-27.001	7.9	2.2	-28.4	222.1	343.2	269.4	66.9W	
APR 18	21 19 14.0	-15-45-1.5	30.37995	30.06367	-27.709	7.9	2.2	-28.4	207.5	343.1	269.5	70.7W	
APR 22	21 19 29.4	-15-43-54.2	30.31524	30.06358	-28.290	7.9	2.3	-28.4	192.9	343.1	269.5	74.6W	
APR 26	21 19 42.9	-15-42-55.7	30.24933	30.06349	-28.749	7.9	2.3	-28.4	178.3	343.0	269.5	78.4W	
APR 30	21 19 54.4	-15-42-6.3	30.18250	30.06340	-29.089	7.9	2.3	-28.4	163.7	343.0	269.5	82.3W	
MAY 4	21 20 3.8	-15-41-26.5	30.11503	30.06332	-29.301	7.9	2.3	-28.4	149.1	342.9	269.6	86.1W	
MAY 8	21 20 11.2	-15-40-56.1	30.04723	30.06323	-29.375	7.9	2.3	-28.4	134.5	342.9	269.6	89.9W	
MAY 12	21 20 16.5	-15-40-35.2	29.97942	30.06314	-29.306	7.9	2.3	-28.4	120.0	342.9	269.6	93.8W	
MAY 16	21 20 19.7	-15-40-24.2	29.91193	30.06305	-29.098	7.9	2.3	-28.4	105.4	342.9	269.6	97.6W	
MAY 20	21 20 20.8	-15-40-22.9	29.84508	30.06296	-28.758	7.9	2.3	-28.4	90.9	342.9	269.6	101.5W	
MAY 24	21 20 19.9	-15-40-30.9	29.77915	30.06287	-28.294	7.9	2.3	-28.4	76.3	342.9	269.7	105.3W	
MAY 28	21 20 17.0	-15-40-48.2	29.71443	30.06278	-27.712	7.9	2.3	-28.4	61.8	342.9	269.7	109.2W	
JUN 1	21 20 12.0	-15-41-15.1	29.65120	30.06269	-27.005	7.9	2.3	-28.4	47.3	342.9	269.7	113.0W	
JUN 5	21 20 5.0	-15-41-51.0	29.58976	30.06260	-26.167	7.9	2.3	-28.4	32.7	342.9	269.7	116.9W	
JUN 9	21 19 56.2	-15-42-35.6	29.53040	30.06252	-25.199	7.9	2.3	-28.4	18.2	343.0	269.8	120.8W	
JUN 13	21 19 45.4	-15-43-29.0	29.47342	30.06243	-24.109	7.9	2.3	-28.4	3.7	343.0	269.8	124.6W	
JUN 17	21 19 32.9	-15-44-30.7	29.41909	30.06234	-22.908	7.9	2.3	-28.4	349.2	343.0	269.8	128.5W	
JUN 21	21 19 18.6	-15-45-39.9	29.36765	30.06225	-21.607	7.9	2.3	-28.4	334.6	343.1	269.8	132.4W	
JUN 25	21 19 2.8	-15-46-56.5	29.31932	30.06216	-20.216	7.9	2.3	-28.4	320.1	343.1	269.9	136.3W	
JUN 29	21 18 45.4	-15-48-20.2	29.27432	30.06207	-18.729	7.9	2.3	-28.3	305.6	343.2	269.9	140.2W	
JUL 3	21 18 26.6	-15-49-50.1	29.23286	30.06199	-17.144	7.8	2.3	-28.3	291.1	343.3	269.9	144.1W	
JUL 7	21 18 6.5	-15-51-25.9	29.19517	30.06190	-15.468	7.8	2.3	-28.3	276.5	343.3	269.9	148.0W	
JUL 11	21 17 45.1	-15-53-7.3	29.16145	30.06181	-13.713	7.8	2.3	-28.3	262.0	343.4	270.0	151.9W	
JUL 15	21 17 22.7	-15-54-53.3	29.13185	30.06172	-11.894	7.8	2.3	-28.3	247.4	343.5	270.0	155.8W	
JUL 19	21 16 59.3	-15-56-43.0	29.10652	30.06163	-10.025	7.8	2.3	-28.3	232.9	343.6	270.0	159.7W	
JUL 23	21 16 35.2	-15-58-36.2	29.08556	30.06155	-8.115	7.8	2.3	-28.3	218.3	343.7	270.0	163.6W	
JUL 27	21 16 10.4	-16-0-32.2	29.06906	30.06146	-6.161	7.8	2.3	-28.3	203.7	343.7	270.1	167.5W	
JUL 31	21 15 45.1	-16-2-30.1	29.05712	30.06137	-4.166	7.8	2.4	-28.3	189.1	343.8	270.1	171.5W	
AUG 4	21 15 19.4	-16-4-29.3	29.04983	30.06128	-2.139	7.8	2.4	-28.3	174.5	343.9	270.1	175.4W	
AUG 8	21 14 53.6	-16-6-29.4	29.04725	30.06120	-0.096	7.8	2.4	-28.3	159.9	344.0	270.1	179.3W	
AUG 12	21 14 27.6	-16-8-29.3	29.04938	30.06111	1.947	7.8	2.4	-28.3	145.3	344.1	270.2	176.7E	
AUG 16	21 14 1.8	-16-10-28.0	29.05622	30.06102	3.974	7.8	2.4	-28.3	130.6	344.2	270.2	172.8E	
AUG 20	21 13 36.4	-16-12-25.3	29.06772	30.06093	5.978	7.8	2.3	-28.3	116.0	344.3	270.2	168.8E	
AUG 24	21 13 11.2	-16-14-20.5	29.08382	30.06085	7.960	7.8	2.3	-28.3	101.3	344.3	270.2	164.9E	
AUG 28	21 12 46.7	-16-15-12.6	29.10448	30.06076	9.918	7.8	2.3	-28.3	86.6	344.4	270.3	160.9E	
SEP 1	21 12 23.0	-16-18-1.2	29.12961	30.06067	11.837	7.8	2.3	-28.3	71.9	344.5	270.3	156.9E	
SEP 5	21 12 0.1	-16-19-45.9	29.15912	30.06058	13.704	7.8	2.3	-28.3	57.2	344.6	270.3	153.0E	
SEP 9	21 11 38.2	-16-21-25.5	29.19287	30.06050	15.502	7.8	2.3	-28.3	42.4	344.7	270.3	149.0E	
SEP 13	21 11 17.5	-16-22-59.5	29.23068	30.06041	17.219	7.8	2.3	-28.3	27.8	344.7	270.3	145.0E	
SEP 17	21 10 58.1	-16-24-27.6	29.27236	30.06032	18.848	7.9	2.3	-28.3	12.9	344.8	270.4	141.0E	
SEP 21	21 10 40.1	-16-25-49.3	29.31770	30.06024	20.394	7.9	2.3	-28.3	358.1	344.9	270.4	137.0E	
SEP 25	21 10 23.7	-16-27-3.8	29.36651	30.06015	21.853	7.9	2.3	-28.3	343.2	344.9	270.4	133.1E	
SEP 29	21 10 8.9	-16-28-11.0	29.41859	30.06006	23.215	7.9	2.3	-28.3	328.4	345.0	270.4	129.1E	
OCT 3	21 9 55.9	-16-29-10.6	29.47369	30.05998	24.466	7.9	2.3	-28.3	313.5	345.0	270.5	125.1E	
OCT 7	21 9 44.7	-16-30-1.6	29.53153	30.05989	25.593	7.9	2.3	-28.3	298.7	345.1	270.5	121.1E	
OCT 11	21 9 35.4	-16-30-44.0	29.59183	30.05980	26.588	7.9	2.3	-28.3	283.8	345.1	270.5	117.1E	
OCT 15	21 9 28.1	-16-31-17.7	29.65427	30.05971	27.451	7.9	2.3	-28.3	268.9	345.1	270.5	113.1E	
OCT 19	21 9 22.9	-16-31-42.3	29.71856	30.05963	28.188	7.9	2.3	-28.3	253.9	345.1	270.6	109.1E	
OCT 23	21 9 19.8	-16-31-57.5	29.78442	30.05954	28.800	7.9	2.3	-28.3	239.0	345.1	270.6	105.1E	
OCT 27	21 9 18.7	-16-32-3.6	29.85153	30.05945	29.279	7.9	2.3	-28.3	224.1	345.1	270.6	101.2E	
OCT 31	21 9 19.9	-16-32-0.2	29.91958	30.05937	29.615	7.9	2.3	-28.3	209.1	345.1	270.6	97.2E	
NOV 4	21 9 23.2	-16-31-46.9	29.98825	30.05928	29.802	7.9	2.3	-28.3	194.1	345.1	270.7	93.2E	
NOV 8	21 9 28.7	-16-31-23.9	30.05716	30.05919	29.835	7.9	2.3	-28.3	179.1	345.1	270.7	89.2E	
NOV 12	21 9 36.4	-16-30-51.7	30.12598	30.05911	29.723	7.9	2.3	-28.3	164.1	345.1	270.7	85.2E	
NOV 16	21 9 46.2	-16-30-9.7	30.19439	30.05902	29.475	7.9	2.3	-28.3	149.1	345.1	270.7	81.2E	
NOV 20	21 9 58.2	-16-29-18.3	30.26207	30.05893	29.096	7.9	2.3	-28.3	134.1	345.0	270.8	77.2E	
NOV 24	21 10 12.2	-16-28-18.0	30.32872	30.05885	28.582	7.9	2.3	-28.3	119.1	345.0	270.8	73.2E	
NOV 28	21 10 28.2	-16-27-8.6	30.39403	30.05876	27.930	7.9	2.2	-28.3	104.1	344.9	270.8	69.3E	
DEC 2	21 10 46.3	-16-25-50.1	30.4										

Date (O DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	21 14 12.3	-16-10-44.3	30.87225	30.05798	16.612	8.0	2.2	-28.3	328.8	344.1	271.0	33.6E	
JAN 7	21 14 44.2	-16-8-22.6	30.90863	30.05790	14.868	8.0	2.2	-28.3	313.8	344.0	271.0	29.6E	
JAN 11	21 15 17.1	-16-5-55.8	30.94091	30.05781	13.066	8.0	2.2	-28.3	298.8	343.9	271.1	25.7E	
JAN 15	21 15 50.9	-16-3-25.0	30.96897	30.05773	11.215	8.0	2.2	-28.3	283.8	343.8	271.1	21.8E	
JAN 19	21 16 25.4	-16-0-50.8	30.99270	30.05764	9.316	8.0	2.2	-28.3	268.8	343.7	271.1	17.8E	
JAN 23	21 17 0.5	-15-58-13.3	31.01198	30.05755	7.373	8.0	2.2	-28.3	253.8	343.6	271.1	13.9E	
JAN 27	21 17 36.1	-15-55-33.1	31.02674	30.05747	5.390	8.0	2.2	-28.3	238.8	343.4	271.2	10.0E	
JAN 31	21 18 12.1	-15-52-51.2	31.03687	30.05738	3.377	8.0	2.2	-28.3	223.9	343.3	271.2	6.1E	
FEB 4	21 18 48.2	-15-50-8.1	31.04234	30.05730	1.356	8.0	2.2	-28.3	208.9	343.2	271.2	2.2E	
FEB 8	21 19 24.4	-15-47-24.2	31.04315	30.05721	-0.658	8.0	2.2	-28.3	194.0	343.1	271.2	1.7W	
FEB 12	21 20 0.5	-15-44-40.4	31.03932	30.05713	-2.657	8.0	2.2	-28.3	179.1	343.0	271.3	5.6W	
FEB 16	21 20 36.4	-15-41-57.4	31.03089	30.05704	-4.640	8.0	2.2	-28.3	164.2	342.8	271.3	9.5W	
FEB 20	21 21 12.0	-15-39-15.4	31.01790	30.05696	-6.603	8.0	2.2	-28.3	149.3	342.7	271.3	13.4W	
FEB 24	21 21 47.1	-15-36-35.1	31.00041	30.05687	-8.540	8.0	2.2	-28.3	134.5	342.6	271.3	17.3W	
FEB 28	21 22 21.7	-15-33-57.3	30.97847	30.05679	-10.442	8.0	2.2	-28.3	119.6	342.5	271.4	21.2W	
MAR 4	21 22 55.4	-15-31-22.6	30.95221	30.05670	-12.289	8.0	2.2	-28.3	104.8	342.4	271.4	25.0W	
MAR 8	21 23 28.4	-15-28-51.4	30.92175	30.05662	-14.066	8.0	2.2	-28.3	90.0	342.3	271.4	28.9W	
MAR 12	21 24 0.4	-15-26-24.6	30.88728	30.05653	-15.770	8.0	2.2	-28.3	75.2	342.1	271.4	32.8W	
MAR 16	21 24 31.3	-15-24-2.8	30.84895	30.05645	-17.399	8.0	2.2	-28.3	60.4	342.0	271.5	36.6W	
MAR 20	21 25 1.1	-15-21-46.1	30.80695	30.05636	-18.953	8.0	2.2	-28.3	45.7	341.9	271.5	40.5W	
MAR 24	21 25 29.6	-15-19-35.0	30.76145	30.05628	-20.427	8.0	2.2	-28.3	30.9	341.8	271.5	44.3W	
MAR 28	21 25 56.7	-15-17-30.6	30.71264	30.05619	-21.814	8.0	2.2	-28.3	16.2	341.8	271.5	48.2W	
APR 1	21 26 22.3	-15-15-32.9	30.66075	30.05611	-23.094	8.0	2.2	-28.3	1.5	341.7	271.6	52.0W	
APR 5	21 26 46.3	-15-13-42.4	30.60603	30.05602	-24.257	7.9	2.2	-28.3	346.8	341.6	271.6	55.9W	
APR 9	21 27 8.7	-15-11-59.9	30.54876	30.05594	-25.305	7.9	2.2	-28.3	332.1	341.5	271.6	59.7W	
APR 13	21 27 29.4	-15-10-25.6	30.48920	30.05585	-26.238	7.9	2.2	-28.3	317.4	341.4	271.6	63.5W	
APR 17	21 27 48.2	-15-8-59.5	30.42762	30.05577	-27.059	7.9	2.2	-28.3	302.8	341.4	271.6	67.4W	
APR 21	21 28 5.3	-15-7-42.1	30.36427	30.05568	-27.767	7.9	2.2	-28.3	288.2	341.3	271.7	71.2W	
APR 25	21 28 20.4	-15-6-34.1	30.29942	30.05560	-28.354	7.9	2.3	-28.3	273.5	341.3	271.7	75.0W	
APR 29	21 28 33.6	-15-5-35.2	30.23337	30.05552	-28.805	7.9	2.3	-28.3	258.9	341.2	271.7	78.9W	
MAY 3	21 28 44.8	-15-4-45.8	30.16644	30.05543	-29.115	7.9	2.3	-28.3	244.3	341.2	271.7	82.7W	
MAY 7	21 28 53.9	-15-4-6.4	30.09895	30.05535	-29.290	7.9	2.3	-28.3	229.7	341.2	271.8	86.6W	
MAY 11	21 29 0.9	-15-3-36.9	30.03121	30.05526	-29.334	7.9	2.3	-28.3	215.2	341.1	271.8	90.4W	
MAY 15	21 29 6.0	-15-3-16.9	29.96351	30.05518	-29.253	7.9	2.3	-28.3	200.6	341.1	271.8	94.2W	
MAY 19	21 29 9.0	-15-3-6.9	29.89614	30.05509	-29.049	7.9	2.3	-28.3	186.1	341.1	271.8	98.1W	
MAY 23	21 29 9.9	-15-3-7.0	29.82939	30.05501	-28.715	7.9	2.3	-28.3	171.5	341.1	271.9	101.9W	
MAY 27	21 29 8.7	-15-3-16.7	29.76357	30.05492	-28.241	7.9	2.3	-28.3	157.0	341.1	271.9	105.8W	
MAY 31	21 29 5.6	-15-3-36.2	29.69901	30.05484	-27.629	7.9	2.3	-28.3	142.4	341.1	271.9	109.6W	
JUN 4	21 29 0.4	-15-4-5.5	29.63602	30.05476	-26.887	7.9	2.3	-28.3	127.9	341.1	271.9	113.5W	
JUN 8	21 28 53.3	-15-4-44.1	29.57488	30.05467	-26.024	7.9	2.3	-28.3	113.4	341.2	272.0	117.3W	
JUN 12	21 28 44.3	-15-5-31.5	29.51586	30.05459	-25.049	7.9	2.3	-28.3	98.9	341.2	272.0	121.2W	
JUN 16	21 28 33.4	-15-6-27.7	29.45922	30.05450	-23.967	7.9	2.3	-28.3	84.3	341.2	272.0	125.1W	
JUN 20	21 28 20.8	-15-7-32.5	29.40520	30.05442	-22.773	7.9	2.3	-28.3	69.8	341.3	272.0	128.9W	
JUN 24	21 28 6.5	-15-8-45.1	29.35408	30.05433	-21.463	7.9	2.3	-28.3	55.3	341.3	272.1	132.8W	
JUN 28	21 27 50.5	-15-10-5.3	29.30612	30.05425	-20.042	7.9	2.3	-28.3	40.8	341.4	272.1	136.7W	
JUL 2	21 27 33.1	-15-11-32.8	29.26155	30.05416	-18.525	7.9	2.3	-28.3	26.3	341.4	272.1	140.6W	
JUL 6	21 27 14.2	-15-13-6.8	29.22059	30.05408	-16.922	7.8	2.3	-28.3	11.7	341.5	272.1	144.5W	
JUL 10	21 26 54.0	-15-14-46.4	29.18341	30.05399	-15.247	7.8	2.3	-28.3	357.2	341.6	272.2	148.4W	
JUL 14	21 26 32.7	-15-16-31.6	29.15019	30.05391	-13.506	7.8	2.3	-28.3	342.6	341.6	272.2	152.3W	
JUL 18	21 26 10.3	-15-18-21.6	29.12106	30.05382	-11.696	7.8	2.3	-28.3	328.1	341.7	272.2	156.2W	
JUL 22	21 25 47.0	-15-20-15.4	29.09620	30.05374	-9.817	7.8	2.3	-28.3	313.5	341.8	272.2	160.1W	
JUL 26	21 25 23.0	-15-22-12.8	29.07574	30.05366	-7.881	7.8	2.3	-28.3	299.0	341.9	272.2	164.0W	
JUL 30	21 24 58.2	-15-24-13.2	29.05981	30.05357	-5.903	7.8	2.3	-28.3	284.4	342.0	272.3	168.0W	
AUG 3	21 24 33.0	-15-26-15.3	29.04848	30.05349	-3.899	7.8	2.4	-28.3	269.8	342.0	272.3	171.9W	
AUG 7	21 24 7.5	-15-28-19.4	29.04180	30.05340	-1.881	7.8	2.4	-28.3	255.2	342.1	272.3	175.8W	
AUG 11	21 23 41.8	-15-30-22.2	29.03979	30.05332	0.142	7.8	2.4	-28.3	240.6	342.2	272.3	179.7W	
AUG 15	21 23 16.0	-15-32-25.8	29.04245	30.05323	2.172	7.8	2.4	-28.3	225.9	342.3	272.4	176.3E	
AUG 19	21 22 50.4	-15-34-28.2	29.04982	30.05315	4.207	7.8	2.4	-28.3	211.3	342.4	272.4	172.3E	
AUG 23	21 22 25.1	-15-36-29.2	29.06188	30.05306	6.231	7.8	2.3	-28.3	196.6	342.5	272.4	168.4E	
AUG 27	21 22 0.2	-15-38-28.0	29.07858	30.05298	8.229	7.8	2.3	-28.3	181.9	342.6	272.4	164.4E	
AUG 31	21 21 35.9	-15-40-23.3	29.09986	30.05289	10.184	7.8	2.3	-28.3	167.2	342.6	272.5	160.4E	
SEP 4	21 21 12.4	-15-42-14.7	29.12559	30.05281	12.085	7.8	2.3	-28.3	152.5	342.7	272.5	156.5E	
SEP 8	21 20 49.7	-15-44-1.9	29.15565	30.05273	13.925	7.8	2.3	-28.3	137.8	342.8	272.5	152.5E	
SEP 12	21 20 28.1	-15-45-43.8	29.18988	30.05264	15.706	7.8	2.3	-28.3	123.0	342.9	272.5	148.5E	
SEP 16	21 20 7.7	-15-47-19.9	29.22816	30.05256	17.426	7.8	2.3	-28.3	108.3	342.9	272.6	144.5E	
SEP 20	21 19 48.6	-15-48-50.1	29.27033	30.05247	19.069	7.9	2.3	-28.3	93.5	343.0	272.6	140.5E	
SEP 24	21 19 30.9	-15-50-13.4	29.31619	30.05239	20.620	7.9	2.3	-28.3	78.7	343.1	272.6	136.6E	
SEP 28	21 19 14.7	-15-51-29.2	29.36552	30.05230	22.066	7.9	2.3	-28.3	63.9	343.1	272.6	132.6E	
OCT 2	21 19 0.3	-15-52-37.1	29.41805	30.05222	23.398	7.9	2.3	-28.3	49.0	343.2	272.7	128.6E	
OCT 6	21 18 47.5	-15-53-37.0	29.47353	30.05213	24.614	7.9	2.3	-28.3	34.2	343.2	272.7	124.6E	
OCT 10	21 18 36.6	-15-54-28.1	29.53169	30.05205	25.721	7.9	2.3	-28.3	19.3	343.3	272.7	120.6E	
OCT 14	21 18 27.7	-15-55-10.2	29.59228	30.05197	26.714	7.9	2.3	-28.3	4.4	343.3	272.7	116.6E	
OCT 18	21 18 20.7	-15-55-43.5	29.65502	30.05188	27.583	7.9	2.3	-28.3	349.5	343.3	272.8	112.6E	
OCT 22	21 18 15.7	-15-56-7.4	29.71962	30.05180	28.316	7.9	2.3	-28.3	334.6	343.3	272.8	108.6E	
OCT 26	21 18 12.8	-15-56-21.2	29.78574	30.05171	28.905	7.9	2.3	-28.3	319.6	343.3	272.8	104.6E	
OCT 30	21 18 12.1	-15-56-25.3	29.85306	30.05163	29.347	7.9	2.3	-28.3	304.7	343.3	272.8	100.6E	
NOV 3	21 18 13.5	-15-56-19.8	29.92123	30.05154	29.644	7.9	2.3	-28.3	289.7	343.3	272.9	96.6E	
NOV 7	21 18 17.1	-15-56-4.0	29.98992	30.05146	29.808	7.9	2.3	-28.3	274.7	343.3	272.9	92.6E	
NOV 11	21 18 22.9	-15-55-38.4	30.05885	30.05137	29.838	7.9	2.3	-28.3	259.7	343.3	272.9	88.6E	
NOV 15	21 18 30.8	-15-55-3.1	30.12768	30.05129	29.728	7.9	2.3	-28.3	244.7	343.3	272.9	84.6E	
NOV 19	21 18 40.8	-15-54-17.9	30.19609	30.05121	29.470	7.9	2.3	-28.3	229.7	343.2	272.9	80.6E	
NOV 23	21 18 53.0	-15-53-22.8	30.26373	30.05112	29.062	7.9	2.3	-28.3	214.7	343.2	273.0	76.7E	
NOV 27	21 19 7.2	-15-52-18.2	30.33025	30.05104	28.508	7.9	2.3	-28.3	199.7	343.1	273.0	72.7E	
DEC 1	21 19 23.5	-15-51-4.4											

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 1	16 0 43.3	-7 0 -46.1	30.53359	29.81408	-18.785	13.8	0.1	-15.7	137.5	78.5	197.6	42.3W	
JAN 5	16 1 13.3	-7 1 -21.5	30.48849	29.81471	-20.251	13.8	0.1	-15.8	3.0	78.5	197.6	46.1W	
JAN 9	16 1 41.8	-7 1 -46.7	30.44011	29.81534	-21.612	13.8	0.1	-15.9	228.5	78.4	197.7	49.8W	
JAN 13	16 2 8.9	-7 2 -1.8	30.38872	29.81597	-22.867	13.8	0.1	-16.0	94.0	78.4	197.7	53.6W	
JAN 17	16 2 34.4	-7 2 -7.2	30.33454	29.81660	-24.015	13.8	0.1	-16.1	319.5	78.4	197.7	57.4W	
JAN 21	16 2 58.3	-7 2 -2.8	30.27784	29.81724	-25.057	13.8	0.1	-16.2	185.0	78.4	197.7	61.3W	
JAN 25	16 3 20.4	-7 1 -48.6	30.21886	29.81787	-25.989	13.8	0.1	-16.3	50.4	78.4	197.8	65.1W	
JAN 29	16 3 40.6	-7 1 -25.0	30.15786	29.81851	-26.799	13.8	0.1	-16.4	275.9	78.3	197.8	69.0W	
FEB 2	16 3 58.9	7 0 52.4	30.09514	29.81914	-27.474	13.8	0.1	-16.4	141.4	78.3	197.8	72.8W	
FEB 6	16 4 15.2	-7 0 -10.7	30.03103	29.81978	-28.006	13.8	0.1	-16.5	6.9	78.3	197.8	76.7W	
FEB 10	16 4 29.5	-6 59 -20.5	29.96585	29.82042	-28.399	13.8	0.1	-16.6	232.3	78.3	197.9	80.6W	
FEB 14	16 4 41.7	-6 58 -22.5	29.89992	29.82106	-28.656	13.8	0.1	-16.6	97.8	78.3	197.9	84.5W	
FEB 18	16 4 51.7	-6 57 -16.7	29.83355	29.82170	-28.781	13.8	0.1	-16.7	323.3	78.3	197.9	88.4W	
FEB 22	16 4 59.6	-6 56 3.6	29.76704	29.82234	-28.776	13.8	0.1	-16.7	188.7	78.3	198.0	92.3W	
FEB 26	16 5 5.3	-6 54 44.0	29.70070	29.82298	-28.632	13.8	0.1	-16.7	54.2	78.3	198.0	96.1W	
MAR 2	16 5 8.8	-6 53 -18.3	29.63486	29.82363	-28.339	13.8	0.1	-16.8	279.6	78.3	198.0	100.0W	
MAR 6	16 5 10.1	-6 51 -46.9	29.56987	29.82427	-27.899	13.8	0.1	-16.8	145.1	78.3	198.0	103.9W	
MAR 10	16 5 9.2	-6 50 -10.6	29.50606	29.82492	-27.320	13.8	0.1	-16.8	10.5	78.3	198.1	107.8W	
MAR 14	16 5 6.3	-6 48 -30.2	29.44375	29.82557	-26.610	13.8	0.1	-16.8	236.0	78.3	198.1	111.7W	
MAR 18	16 5 1.2	-6 46 46.2	29.38321	29.82622	-25.779	13.8	0.1	-16.7	101.4	78.4	198.1	115.6W	
MAR 22	16 4 54.0	-6 44 59.1	29.32473	29.82687	-24.830	13.8	0.1	-16.7	326.8	78.4	198.1	119.4W	
MAR 26	16 4 44.9	-6 43 -10.0	29.26857	29.82752	-23.760	13.8	0.1	-16.7	192.2	78.4	198.2	123.3W	
MAR 30	16 4 33.9	-6 41 -19.3	29.21504	29.82817	-22.565	13.8	0.1	-16.7	57.7	78.4	198.2	127.1W	
APR 3	16 4 20.9	-6 39 -27.7	29.16440	29.82882	-21.253	13.7	0.1	-16.6	283.1	78.4	198.2	130.9W	
APR 7	16 4 6.3	-6 37 36.1	29.11692	29.82948	-19.836	13.7	0.1	-16.6	148.5	78.4	198.3	134.7W	
APR 11	16 3 50.0	-6 35 -45.5	29.07282	29.83013	-18.327	13.7	0.1	-16.5	13.9	78.5	198.3	138.4W	
APR 15	16 3 32.2	-6 33 -56.1	29.03229	29.83079	-16.739	13.7	0.1	-16.4	239.4	78.5	198.3	142.1W	
APR 19	16 3 13.0	-6 32 -8.9	28.99552	29.83145	-15.080	13.7	0.1	-16.4	104.8	78.5	198.3	145.8W	
APR 23	16 2 52.5	-6 30 -24.7	28.96267	29.83211	-13.347	13.7	0.1	-16.3	330.2	78.5	198.4	149.4W	
APR 27	16 2 30.8	-6 28 43.9	28.93391	29.83277	-11.540	13.7	0.1	-16.2	195.6	78.5	198.4	152.8W	
MAY 1	16 2 8.1	-6 27 -7.3	28.90939	29.83343	-9.674	13.7	0.1	-16.1	61.0	78.6	198.4	156.1W	
MAY 5	16 1 44.5	-6 25 -35.7	28.88924	29.83409	-7.762	13.7	0.1	-16.0	286.4	78.6	198.4	159.2W	
MAY 9	16 1 20.2	-6 24 -9.9	28.87354	29.83475	-5.821	13.7	0.1	-15.9	151.8	78.6	198.5	161.9W	
MAY 13	16 0 55.3	-6 22 50.0	28.86235	29.83542	-3.863	13.7	0.1	-15.8	17.2	78.6	198.5	164.1W	
MAY 17	16 0 30.0	-6 21 -36.8	28.85569	29.83609	-1.898	13.7	0.1	-15.7	242.6	78.7	198.5	166.6W	
MAY 21	16 0 4.5	-6 20 -31.1	28.85359	29.83675	-0.079	13.7	0.1	-15.6	108.0	78.7	198.6	166.0W	
MAY 25	15 59 38.8	-6 19 -32.8	28.85606	29.83742	2.063	13.7	0.1	-15.5	333.5	78.7	198.6	165.4E	
MAY 29	15 59 13.2	-6 18 -42.7	28.86311	29.83809	4.039	13.7	0.1	-15.4	198.9	78.7	198.6	163.9E	
JUN 2	15 58 47.9	-6 18 -1.4	28.87470	29.83876	5.993	13.7	0.1	-15.3	64.3	78.8	198.6	161.6E	
JUN 6	15 58 22.8	-6 17 29.1	28.89076	29.83943	7.969	13.7	0.1	-15.2	289.7	78.8	198.7	158.9E	
JUN 10	15 57 58.3	-6 17 -5.9	28.91120	29.84011	9.775	13.7	0.1	-15.1	155.1	78.8	198.7	155.8E	
JUN 14	15 57 34.5	-6 16 -52.3	28.93588	29.84078	11.586	13.7	0.1	-15.0	20.5	78.8	198.7	152.6E	
JUN 18	15 57 11.5	-6 16 -48.5	28.96469	29.84145	13.348	13.7	0.1	-14.9	245.9	78.8	198.7	149.2E	
JUN 22	15 56 49.4	-6 16 -54.4	28.99751	29.84213	15.055	13.7	0.1	-14.9	111.4	78.8	198.8	145.7E	
JUN 26	15 56 28.4	-6 17 -10.2	29.03419	29.84281	16.693	13.7	0.1	-14.8	336.8	78.8	198.8	142.1E	
JUN 30	15 56 8.6	-6 17 -36.4	29.07457	29.84349	18.250	13.7	0.1	-14.7	202.2	78.9	198.8	138.5E	
JUL 4	15 55 50.1	-6 18 -12.6	29.11843	29.84417	19.713	13.7	0.1	-14.6	67.7	78.9	198.8	134.9E	
JUL 8	15 55 33.1	-6 18 -58.6	29.16556	29.84485	21.074	13.7	0.1	-14.5	293.1	78.9	198.9	131.2E	
JUL 12	15 55 17.6	-6 19 -54.8	29.21572	29.84553	22.334	13.8	0.1	-14.5	158.5	78.9	198.9	127.5E	
JUL 16	15 55 3.7	-6 21 -0.8	29.26868	29.84621	23.498	13.8	0.1	-14.4	24.0	78.9	198.9	123.8E	
JUL 20	15 54 51.6	-6 22 -16.1	29.32421	29.84690	24.563	13.8	0.1	-14.4	249.4	78.9	199.0	120.1E	
JUL 24	15 54 41.2	-6 23 -40.9	29.38208	29.84758	25.519	13.8	0.1	-14.3	114.8	78.9	199.0	116.4E	
JUL 28	15 54 32.7	-6 25 -15.0	29.44202	29.84827	26.356	13.8	0.1	-14.3	340.3	78.9	199.0	112.7E	
AUG 1	15 54 26.1	-6 26 -57.9	29.50376	29.84896	27.065	13.8	0.1	-14.2	205.7	78.9	199.0	109.0E	
AUG 5	15 54 21.4	-6 28 -49.1	29.56697	29.84965	27.643	13.8	0.1	-14.2	71.2	78.9	199.1	105.2E	
AUG 9	15 54 18.8	-6 30 48.5	29.63138	29.85034	28.095	13.8	0.1	-14.2	296.7	78.9	199.1	101.5E	
AUG 13	15 54 18.3	-6 32 -55.6	29.69669	29.85103	28.431	13.8	0.1	-14.2	162.1	78.9	199.1	97.8E	
AUG 17	15 54 19.7	-6 35 -9.6	29.76265	29.85172	28.648	13.8	0.1	-14.2	27.6	78.9	199.1	94.1E	
AUG 21	15 54 23.2	-6 37 -30.5	29.82896	29.85242	28.740	13.8	0.1	-14.2	253.1	78.8	199.2	90.4E	
AUG 25	15 54 28.9	-6 39 -57.8	29.89534	29.85311	28.700	13.8	0.1	-14.2	118.5	78.8	199.2	86.6E	
AUG 29	15 54 36.5	-6 42 -30.7	29.96146	29.85381	28.523	13.8	0.1	-14.2	344.0	78.8	199.2	82.9E	
SEP 2	15 54 46.3	-6 45 -8.6	30.02702	29.85451	28.212	13.8	0.1	-14.3	209.5	78.8	199.3	79.2E	
SEP 6	15 54 58.1	-6 47 -51.3	30.09172	29.85521	27.776	13.8	0.1	-14.3	75.0	78.8	199.3	75.5E	
SEP 10	15 55 11.9	-6 50 -37.9	30.15527	29.85591	27.227	13.8	0.1	-14.3	300.5	78.8	199.3	71.8E	
SEP 14	15 55 27.6	-6 53 -27.7	30.21743	29.85661	26.566	13.8	0.1	-14.4	166.0	78.7	199.3	68.1E	
SEP 18	15 55 45.2	-6 56 -20.5	30.27793	29.85731	25.787	13.8	0.1	-14.5	31.4	78.7	199.4	64.4E	
SEP 22	15 56 4.7	-6 59 -15.5	30.33649	29.85801	24.888	13.8	0.1	-14.5	256.9	78.7	199.4	60.7E	
SEP 26	15 56 26.0	-7 1 -12.0	30.39283	29.85872	23.870	13.8	0.1	-14.6	122.4	78.7	199.4	57.0E	
SEP 30	15 56 49.0	-7 1 -9.3	30.44669	29.85942	22.737	13.8	0.1	-14.7	347.9	78.6	199.4	53.3E	
OCT 4	15 57 13.7	-7 2 -7.1	30.49782	29.86013	21.506	13.8	0.1	-14.8	213.4	78.6	199.5	49.7E	
OCT 8	15 57 39.9	-7 11 -4.4	30.54599	29.86084	20.187	13.8	0.1	-14.9	79.0	78.6	199.5	46.0E	
OCT 12	15 58 7.6	-7 14 -0.5	30.59103	29.86154	18.784	13.8	0.1	-15.0	304.5	78.5	199.5	42.4E	
OCT 16	15 58 36.7	-7 16 -55.3	30.63272	29.86225	17.295	13.8	0.1	-15.1	170.0	78.5	199.5	38.8E	
OCT 20	15 59 7.0	-7 17 -48.0	30.67088	29.86297	15.722	13.8	0.1	-15.2	35.5	78.5	199.6	35.2E	
OCT 24	15 59 38.5	-7 22 -37.7	30.70530	29.86368	14.066	13.8	0.1	-15.3	261.0	78.4	199.6	31.7E	
OCT 28	16 0 11.2	-7 25 -24.0	30.73582	29.86439	12.339	13.8	0.1	-15.4	126.5	78.4	199.6	28.3E	
NOV 1	16 0 44.7	-7 28 -6.5	30.76228	29.86511	10.558	13.8	0.1	-15.6	352.0	78.3	199.7	24.9E	
NOV 5	16 1 19.1	-7 30 44.2	30.78457	29.86582	8.737	13.8	0.1	-15.7	217.5	78.3	199.7	21.7E	
NOV 9	16 1 54.2	-7 33 -16.9	30.80262	29.86654	6.880	13.8	0.1	-15.8	83.1	78.3	199.7	18.8E	
NOV 13	16 2 29.8	-7 35 44.1	30.81634	29.86726	4.987	13.8	0.1	-16.0	308.6	78.2	199.7	16.2E	
NOV 17	16 3 6.0	-7 38 -5.3	30.82565	29.86798	3.062	13.8	0.1	-16.1	174.1	78.2	199.8	14.2E	
NOV 21	16 3 42.4	-7 40 -19.8	30.83047	29.86870	1.111	13.8	0.1	-16.2	39.6	78.2	199.8	13.0E	
NOV 25	16 4 19.0	-7 42 -27.3	30.83077	29.86942	-0.854	13.8	0.1	-16.4	265.1	78.1	199.8	12.9E	
NOV 29	16 4 55.7	-7 44 -27.6	30.82654	29.87014	-2.812	13.8	0.1	-16.5	130.6	78.1	199.8	14.0W	
DEC 3	16 5												

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 4	16 10	5.7	-7-56 -4.1	30.59435	29.87670	-18.856	13.8	0.1	-17.7	0.2	77.8	200.1	42.5W
JAN 8	16 10	35.5	-7-56-35.3	30.54910	29.87743	-20.306	13.8	0.1	-17.9	225.7	77.7	200.1	46.2W
JAN 12	16 11	4.0	-7-56-56.9	30.50060	29.87817	-21.668	13.8	0.1	-18.0	91.2	77.7	200.1	50.0W
JAN 16	16 11	30.9	-7-57 -8.8	30.44906	29.87891	-22.936	13.8	0.1	-18.1	316.7	77.7	200.2	53.8W
JAN 20	16 11	56.3	-7-57-11.5	30.39471	29.87964	-24.099	13.8	0.1	-18.2	182.2	77.7	200.2	57.6W
JAN 24	16 12	19.9	-7-57 -4.9	30.33781	29.88038	-25.138	13.8	0.1	-18.3	47.7	77.6	200.2	61.5W
JAN 28	16 12	41.8	-7-56-49.1	30.27866	29.88112	-26.047	13.8	0.1	-18.4	273.2	77.6	200.2	65.3W
FEB 1	16 13	1.8	-7-56-24.5	30.21757	29.88187	-26.828	13.8	0.1	-18.4	138.7	77.6	200.3	69.2W
FEB 5	16 13	19.8	-7-55-51.5	30.15481	29.88261	-27.484	13.8	0.1	-18.5	4.2	77.6	200.3	73.1W
FEB 9	16 13	35.9	-7-55-10.1	30.09067	29.88335	-28.016	13.8	0.1	-18.6	229.6	77.6	200.3	76.9W
FEB 13	16 13	49.9	-7-54-20.8	30.02546	29.88410	-28.419	13.8	0.1	-18.7	95.1	77.6	200.4	80.8W
FEB 17	16 14	1.8	-7-53-24.1	29.95947	29.88484	-28.686	13.8	0.1	-18.7	320.6	77.6	200.4	84.7W
FEB 21	16 14	11.6	-7-52-20.3	29.89304	29.88559	-28.803	13.8	0.1	-18.7	186.0	77.6	200.4	88.6W
FEB 25	16 14	19.1	-7-51 -9.7	29.82650	29.88634	-28.771	13.8	0.1	-18.8	51.5	77.6	200.4	92.5W
FEB 29	16 14	24.5	-7-49-53.1	29.76021	29.88709	-28.597	13.8	0.1	-18.8	276.9	77.6	200.5	96.4W
MAR 4	16 14	27.7	-7-48-31.1	29.69448	29.88784	-28.288	13.8	0.1	-18.8	142.4	77.6	200.5	100.3W
MAR 8	16 14	28.7	-7-47 -4.0	29.62961	29.88859	-27.850	13.8	0.1	-18.8	7.8	77.6	200.5	104.2W
MAR 12	16 14	27.6	-7-45-32.4	29.56590	29.88935	-27.282	13.8	0.1	-18.8	233.3	77.6	200.5	108.1W
MAR 16	16 14	24.3	-7-43-57.2	29.50365	29.89010	-26.581	13.8	0.1	-18.8	98.7	77.6	200.6	112.0W
MAR 20	16 14	18.9	-7-42-18.8	29.44319	29.89086	-25.739	13.8	0.1	-18.8	324.2	77.6	200.6	115.8W
MAR 24	16 14	11.5	-7-40-37.7	29.38483	29.89161	-24.763	13.8	0.1	-18.8	189.6	77.6	200.6	119.7W
MAR 28	16 14	2.1	-7-38-54.9	29.32887	29.89237	-23.667	13.8	0.1	-18.8	55.0	77.6	200.7	123.6W
APR 1	16 13	50.7	-7-37-11.1	29.27556	29.89313	-22.461	13.8	0.1	-18.7	280.4	77.7	200.7	127.4W
APR 5	16 13	37.5	-7-35-26.7	29.22516	29.89389	-21.155	13.8	0.1	-18.7	145.9	77.7	200.7	131.2W
APR 9	16 13	22.7	-7-33-42.5	29.17789	29.89465	-19.753	13.7	0.1	-18.6	11.3	77.7	200.7	135.0W
APR 13	16 13	6.2	-7-31-59.4	29.13397	29.89542	-18.253	13.7	0.1	-18.6	236.7	77.7	200.8	138.8W
APR 17	16 12	48.1	-7-30-17.8	29.09363	29.89618	-16.654	13.7	0.1	-18.5	102.1	77.8	200.8	142.5W
APR 21	16 12	28.6	-7-28-38.3	29.05708	29.89694	-14.969	13.7	0.1	-18.4	327.5	77.8	200.8	146.1W
APR 25	16 12	7.9	-7-27 -2.0	29.02451	29.89771	-13.214	13.7	0.1	-18.3	193.0	77.8	200.8	149.7W
APR 29	16 11	46.0	-7-25-29.4	28.99607	29.89848	-11.403	13.7	0.1	-18.3	58.4	77.8	200.9	153.2W
MAY 3	16 11	23.1	-7-24 -0.9	28.97186	29.89925	-9.548	13.7	0.1	-18.2	283.8	77.9	200.9	156.5W
MAY 7	16 10	59.4	-7-22-37.3	28.95198	29.90002	-7.654	13.7	0.1	-18.1	149.2	77.9	200.9	159.6W
MAY 11	16 10	35.0	-7-21-19.3	28.93652	29.90079	-5.720	13.7	0.1	-18.0	14.6	77.9	200.9	162.4W
MAY 15	16 10	10.0	-7-20 -7.0	28.92557	29.90156	-3.751	13.7	0.1	-17.9	240.0	77.9	201.0	164.6W
MAY 19	16 9	44.5	-7-19 -1.3	28.91920	29.90233	-1.760	13.7	0.1	-17.8	105.4	78.0	201.0	166.1W
MAY 23	16 9	18.9	-7-18 -2.8	28.91743	29.90310	0.233	13.7	0.1	-17.7	330.8	78.0	201.0	166.5W
MAY 27	16 8	53.2	-7-17-11.8	28.92026	29.90388	2.216	13.7	0.1	-17.6	196.2	78.0	201.1	165.9E
MAY 31	16 8	27.5	-7-16-28.5	28.92765	29.90466	4.177	13.7	0.1	-17.5	61.6	78.0	201.1	164.2E
JUN 4	16 8	2.1	-7-15-53.5	28.93954	29.90543	6.112	13.7	0.1	-17.4	287.1	78.1	201.1	161.9E
JUN 8	16 7	37.1	-7-15-27.3	28.95587	29.90621	8.023	13.7	0.1	-17.3	152.5	78.1	201.1	159.1E
JUN 12	16 7	12.6	-7-15 -9.6	28.97658	29.90699	9.903	13.7	0.1	-17.2	17.9	78.1	201.2	156.0E
JUN 16	16 6	48.8	-7-15 -1.1	29.00158	29.90777	11.739	13.7	0.1	-17.1	243.3	78.1	201.2	152.7E
JUN 20	16 6	25.8	-7-15 -2.0	29.03076	29.90855	13.513	13.7	0.1	-17.0	108.7	78.1	201.2	149.2E
JUN 24	16 6	3.7	-7-15-12.3	29.06396	29.90934	15.214	13.7	0.1	-16.9	334.1	78.2	201.2	145.7E
JUN 28	16 5	42.8	-7-15-32.0	29.10099	29.91012	16.835	13.7	0.1	-16.8	199.6	78.2	201.3	142.1E
JUL 2	16 5	23.1	-7-16 -1.4	29.14167	29.91091	18.373	13.7	0.1	-16.7	65.0	78.2	201.3	138.5E
JUL 6	16 5	4.7	-7-16-40.3	29.18581	29.91169	19.833	13.8	0.1	-16.7	290.4	78.2	201.3	134.9E
JUL 10	16 4	47.7	-7-17-28.5	29.23324	29.91248	21.211	13.8	0.1	-16.6	155.9	78.2	201.3	131.2E
JUL 14	16 4	32.4	-7-18-26.1	29.28374	29.91327	22.492	13.8	0.1	-16.5	21.3	78.2	201.4	127.5E
JUL 18	16 4	18.6	-7-19-33.2	29.33707	29.91406	23.664	13.8	0.1	-16.5	246.7	78.2	201.4	123.8E
JUL 22	16 4	6.6	-7-20-49.3	29.39298	29.91485	24.720	13.8	0.1	-16.4	112.2	78.2	201.4	120.1E
JUL 26	16 3	56.4	-7-22-14.0	29.45119	29.91564	25.655	13.8	0.1	-16.4	337.6	78.2	201.5	116.3E
JUL 30	16 3	48.1	-7-23-47.6	29.51143	29.91644	26.473	13.8	0.1	-16.3	203.1	78.2	201.5	112.6E
AUG 3	16 3	41.6	-7-25-29.3	29.57342	29.91723	27.181	13.8	0.1	-16.3	68.5	78.2	201.5	108.9E
AUG 7	16 3	37.2	-7-27-18.8	29.63692	29.91803	27.775	13.8	0.1	-16.3	294.0	78.2	201.5	105.2E
AUG 11	16 3	34.8	-7-29-15.9	29.70166	29.91882	28.245	13.8	0.1	-16.3	159.4	78.2	201.6	101.4E
AUG 15	16 3	34.4	-7-31-20.3	29.76732	29.91962	28.583	13.8	0.1	-16.2	24.9	78.2	201.6	97.7E
AUG 19	16 3	36.1	-7-33-31.3	29.83361	29.92042	28.785	13.8	0.1	-16.2	250.4	78.2	201.6	94.0E
AUG 23	16 3	39.9	-7-35-48.4	29.90021	29.92122	28.851	13.8	0.1	-16.3	115.8	78.2	201.6	90.2E
AUG 27	16 3	45.8	-7-38-11.5	29.96682	29.92202	28.791	13.8	0.1	-16.3	341.3	78.2	201.7	86.5E
AUG 31	16 3	53.7	-7-40-39.7	30.03315	29.92282	28.613	13.8	0.1	-16.3	206.8	78.1	201.7	82.8E
SEP 4	16 4	3.7	-7-43-12.4	30.09893	29.92363	28.316	13.8	0.1	-16.3	72.3	78.1	201.7	79.0E
SEP 8	16 4	15.7	-7-45-49.5	30.16389	29.92443	27.893	13.8	0.1	-16.4	297.8	78.1	201.8	75.3E
SEP 12	16 4	29.8	-7-48-30.2	30.22771	29.92524	27.339	13.8	0.1	-16.4	163.2	78.1	201.8	71.6E
SEP 16	16 4	45.7	-7-51-13.8	30.29011	29.92605	26.656	13.8	0.1	-16.5	28.7	78.0	201.8	67.9E
SEP 20	16 5	3.7	-7-53-59.9	30.35078	29.92686	25.848	13.9	0.1	-16.5	254.2	78.0	201.8	64.2E
SEP 24	16 5	23.5	-7-56-47.9	30.40945	29.92767	24.929	13.9	0.1	-16.6	119.7	78.0	201.9	60.5E
SEP 28	16 5	45.0	-7-59-37.0	30.46588	29.92848	23.909	13.9	0.1	-16.7	345.2	78.0	201.9	56.8E
OCT 2	16 6	8.3	-8 -2-26.6	30.51984	29.92929	22.788	13.9	0.1	-16.8	210.7	77.9	201.9	53.1E
OCT 6	16 6	33.2	-8 -5-16.5	30.57110	29.93010	21.564	13.9	0.1	-16.9	76.2	77.9	201.9	49.4E
OCT 10	16 6	59.7	-8 -8 -5.8	30.61940	29.93092	20.235	13.9	0.1	-16.9	301.7	77.9	202.0	45.7E
OCT 14	16 7	27.6	-8-10-53.9	30.66452	29.93173	18.806	13.9	0.1	-17.1	167.2	77.8	202.0	42.1E
OCT 18	16 7	57.0	-8-13-40.2	30.70623	29.93255	17.287	13.9	0.1	-17.2	32.7	77.8	202.0	38.5E
OCT 22	16 8	27.6	-8-16-24.3	30.74434	29.93337	15.694	13.9	0.1	-17.3	258.3	77.7	202.0	34.9E
OCT 26	16 8	59.4	-8-19 -5.3	30.77870	29.93419	14.039	13.9	0.1	-17.4	123.8	77.7	202.1	31.3E
OCT 30	16 9	32.2	-8-21-42.8	30.80916	29.93501	12.324	13.9	0.1	-17.5	349.3	77.7	202.1	27.9E
NOV 3	16 10	5.9	-8-24-16.4	30.83560	29.93583	10.548	13.8	0.1	-17.6	214.8	77.6	202.1	24.5E
NOV 7	16 10	40.5	-8-26-45.6	30.85786	29.93665	8.715	13.8	0.1	-17.8	80.3	77.6	202.2	21.3E
NOV 11	16 11	15.7	-8-29 -9.5	30.87583	29.93748	6.832	13.8	0.1	-17.9	305.8	77.5	202.2	18.3E
NOV 15	16 11	51.6	-8-31-28.1	30.88940	29.93830	4.911	13.8	0.1	-18.0	171.3	77.5	202.2	15.7E
NOV 19	16 12	27.9	-8-33-40.7	30.89851	29.93913	2.971	13.8	0.1	-18.2	36.9	77.4	202.2	13.7E
NOV 23	16 13	4.4	-8-35-46.7	30.90313	29.93996	1.026	13.8	0.1	-18.3	262.			

Date (0 DT)	RA (h m s)	[Mean] Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 2	16 18 56.7	-8-49-41.2	30.70680	29.94830	-17.400	13.9	0.1	-19.7	357.5	77.0	202.5	38.9W
JAN 6	16 19 27.7	-8-50-16.9	30.66480	29.94914	-18.951	13.9	0.1	-19.8	223.0	76.9	202.6	42.7W
JAN 10	16 19 57.4	-8-50-43.8	30.61931	29.94998	-20.414	13.9	0.1	-19.9	88.5	76.9	202.6	46.4W
JAN 14	16 20 25.7	-8-51-1.7	30.57056	29.95082	-21.772	13.9	0.1	-20.0	314.0	76.9	202.6	50.2W
JAN 18	16 20 52.4	-8-51-10.3	30.51881	29.95167	-23.016	13.9	0.1	-20.1	179.5	76.9	202.6	54.0W
JAN 22	16 21 17.6	-8-51-10.3	30.46431	29.95251	-24.151	13.9	0.1	-20.2	45.0	76.8	202.7	57.9W
JAN 26	16 21 41.0	-8-51-1.7	30.40731	29.95336	-25.175	13.9	0.1	-20.3	270.5	76.8	202.7	61.7W
JAN 30	16 22 2.6	-8-50-44.6	30.34807	29.95421	-26.087	13.9	0.1	-20.4	136.0	76.8	202.7	65.6W
FEB 3	16 22 22.4	-8-50-19.1	30.28687	29.95506	-26.881	13.9	0.1	-20.5	1.5	76.8	202.7	69.4W
FEB 7	16 22 40.2	-8-49-45.8	30.22398	29.95591	-27.544	13.8	0.1	-20.6	226.9	76.8	202.8	73.3W
FEB 11	16 22 56.0	-8-49-4.9	30.15972	29.95676	-28.064	13.8	0.1	-20.6	92.4	76.7	202.8	77.2W
FEB 15	16 23 9.7	-8-48-16.4	30.09443	29.95761	-28.438	13.8	0.1	-20.7	317.9	76.7	202.8	81.1W
FEB 19	16 23 21.3	-8-47-21.2	30.02843	29.95846	-28.675	13.8	0.1	-20.8	183.4	76.7	202.8	85.0W
FEB 23	16 23 30.7	-8-46-19.6	29.96204	29.95932	-28.778	13.8	0.1	-20.8	48.8	76.7	202.9	88.9W
FEB 27	16 23 38.0	-8-45-11.9	29.89557	29.96017	-28.750	13.8	0.1	-20.8	274.3	76.7	202.9	92.8W
MAR 3	16 23 43.1	-8-43-58.6	29.82931	29.96103	-28.586	13.8	0.1	-20.9	139.7	76.7	202.9	96.7W
MAR 7	16 23 46.0	-8-42-40.5	29.76359	29.96189	-28.282	13.8	0.1	-20.9	5.2	76.7	203.0	100.6W
MAR 11	16 23 46.7	-8-41-17.8	29.69875	29.96275	-27.928	13.8	0.1	-20.9	230.6	76.7	203.0	104.5W
MAR 15	16 23 45.2	-8-39-51.1	29.63513	29.96361	-27.231	13.8	0.1	-20.9	96.1	76.8	203.0	108.4W
MAR 19	16 23 41.6	-8-38-21.2	29.57303	29.96447	-26.502	13.8	0.1	-20.9	321.5	76.8	203.0	112.3W
MAR 23	16 23 35.9	-8-36-48.7	29.51277	29.96533	-25.651	13.8	0.1	-20.9	186.9	76.8	203.1	116.1W
MAR 27	16 23 28.2	-8-35-14.0	29.45461	29.96620	-24.682	13.8	0.1	-20.8	52.4	76.8	203.1	120.0W
MAR 31	16 23 18.5	-8-33-37.8	29.39881	29.96706	-23.599	13.8	0.1	-20.8	277.8	76.8	203.1	123.9W
APR 4	16 23 6.9	-8-32-1.0	29.34566	29.96793	-22.397	13.8	0.1	-20.8	143.2	76.8	203.1	127.7W
APR 8	16 22 53.4	-8-30-23.8	29.29542	29.96880	-21.075	13.8	0.1	-20.7	8.7	76.9	203.2	131.5W
APR 12	16 22 38.3	-8-28-47.1	29.24836	29.96967	-19.644	13.8	0.1	-20.6	234.1	76.9	203.2	135.3W
APR 16	16 22 21.5	-8-27-11.7	29.20472	29.97054	-18.122	13.8	0.1	-20.6	99.5	76.9	203.2	139.1W
APR 20	16 22 3.2	-8-25-38.1	29.16469	29.97141	-16.521	13.7	0.1	-20.5	324.9	76.9	203.3	142.8W
APR 24	16 21 43.5	-8-24-6.8	29.12844	29.97228	-14.848	13.7	0.1	-20.4	190.3	77.0	203.3	146.5W
APR 28	16 21 22.6	-8-22-38.6	29.09613	29.97315	-13.108	13.7	0.1	-20.4	55.7	77.0	203.3	150.1W
MAY 2	16 21 0.5	-8-21-14.1	29.06792	29.97403	-11.301	13.7	0.1	-20.3	281.2	77.0	203.3	153.6W
MAY 6	16 20 37.5	-8-19-53.7	29.04396	29.97490	-9.430	13.7	0.1	-20.2	146.6	77.1	203.4	156.9W
MAY 10	16 20 13.6	-8-18-38.0	29.02438	29.97578	-7.510	13.7	0.1	-20.1	12.0	77.1	203.4	160.1W
MAY 14	16 19 49.0	-8-17-28.0	29.00928	29.97666	-5.560	13.7	0.1	-20.0	237.4	77.1	203.4	162.9W
MAY 18	16 19 23.8	-8-16-23.7	28.99870	29.97754	-3.594	13.7	0.1	-19.9	102.8	77.1	203.4	165.1W
MAY 22	16 18 58.3	-8-15-25.6	28.99268	29.97842	-1.620	13.7	0.1	-19.8	328.2	77.2	203.5	166.6W
MAY 26	16 18 32.6	-8-14-34.4	28.99122	29.97930	0.358	13.7	0.1	-19.7	193.6	77.2	203.5	167.0W
MAY 30	16 18 6.9	-8-13-50.5	28.99433	29.98018	2.339	13.7	0.1	-19.6	59.0	77.2	203.5	166.3E
JUN 3	16 17 41.1	-8-13-13.8	29.00202	29.98107	4.317	13.7	0.1	-19.5	284.4	77.3	203.5	164.6E
JUN 7	16 17 15.7	-8-12-45.2	29.01425	29.98195	6.276	13.7	0.1	-19.4	149.9	77.3	203.6	162.2E
JUN 11	16 16 50.6	-8-12-24.9	29.03098	29.98284	8.197	13.7	0.1	-19.3	15.3	77.3	203.6	159.3E
JUN 15	16 16 26.1	-8-12-13.0	29.05209	29.98373	10.070	13.7	0.1	-19.2	240.7	77.3	203.6	156.1E
JUN 19	16 16 2.3	-8-12-9.6	29.07746	29.98462	11.886	13.7	0.1	-19.1	106.1	77.4	203.7	152.8E
JUN 23	16 15 39.4	-8-12-15.2	29.10695	29.98551	13.644	13.7	0.1	-19.0	331.5	77.4	203.7	149.3E
JUN 27	16 15 17.4	-8-12-29.7	29.14045	29.98640	15.346	13.7	0.1	-18.9	196.9	77.4	203.7	145.8E
JUL 1	16 14 56.5	-8-12-52.9	29.17781	29.98729	16.985	13.7	0.1	-18.9	62.4	77.4	203.7	142.2E
JUL 5	16 14 36.9	-8-13-25.4	29.21886	29.98819	18.545	13.8	0.1	-18.8	287.8	77.4	203.8	138.5E
JUL 9	16 14 18.6	-8-14-6.9	29.26342	29.98908	20.011	13.8	0.1	-18.7	153.2	77.4	203.8	134.9E
JUL 13	16 14 1.7	-8-14-57.2	29.31124	29.98998	21.376	13.8	0.1	-18.6	18.7	77.4	203.8	131.2E
JUL 17	16 13 46.5	-8-15-56.3	29.36210	29.99087	22.636	13.8	0.1	-18.6	244.1	77.5	203.8	127.5E
JUL 21	16 13 32.9	-8-17-4.3	29.41574	29.99177	23.792	13.8	0.1	-18.5	109.5	77.5	203.9	123.7E
JUL 25	16 13 21.0	-8-18-20.7	29.47195	29.99267	24.850	13.8	0.1	-18.4	335.0	77.5	203.9	120.0E
JUL 29	16 13 11.0	-8-19-45.2	29.53048	29.99357	25.804	13.8	0.1	-18.4	200.4	77.5	203.9	116.3E
AUG 2	16 13 2.8	-8-21-17.8	29.59108	29.99447	26.639	13.8	0.1	-18.4	65.9	77.5	203.9	112.5E
AUG 6	16 12 56.6	-8-22-58.2	29.65346	29.99538	27.347	13.8	0.1	-18.3	291.3	77.5	204.0	108.8E
AUG 10	16 12 52.4	-8-24-45.9	29.71733	29.99628	27.923	13.8	0.1	-18.3	156.8	77.5	204.0	105.0E
AUG 14	16 12 50.2	-8-26-40.5	29.78237	29.99719	28.369	13.8	0.1	-18.3	22.2	77.4	204.0	101.3E
AUG 18	16 12 50.1	-8-28-41.9	29.84831	29.99809	28.690	13.8	0.1	-18.3	247.7	77.4	204.1	97.6E
AUG 22	16 12 52.0	-8-30-49.3	29.91484	29.99900	28.894	13.8	0.1	-18.3	113.2	77.4	204.1	93.8E
AUG 26	16 12 56.0	-8-33-2.3	29.98172	29.99991	28.977	13.8	0.1	-18.3	338.6	77.4	204.1	90.1E
AUG 30	16 13 2.1	-8-35-20.8	30.04863	30.00082	28.928	13.8	0.1	-18.3	204.1	77.4	204.1	86.3E
SEP 3	16 13 10.3	-8-37-44.1	30.11527	30.00173	28.744	13.8	0.1	-18.3	69.6	77.4	204.2	82.6E
SEP 7	16 13 20.6	-8-40-11.5	30.18133	30.00265	28.423	13.9	0.1	-18.4	295.1	77.3	204.2	78.8E
SEP 11	16 13 32.9	-8-42-42.6	30.24650	30.00356	27.972	13.9	0.1	-18.4	160.5	77.3	204.2	75.1E
SEP 15	16 13 47.2	-8-45-17.1	30.31048	30.00447	27.401	13.9	0.1	-18.5	26.0	77.3	204.2	71.4E
SEP 19	16 14 3.5	-8-47-54.0	30.37302	30.00539	26.719	13.9	0.1	-18.5	251.5	77.3	204.3	67.7E
SEP 23	16 14 21.6	-8-50-32.9	30.43385	30.00631	25.925	13.9	0.1	-18.6	117.0	77.2	204.3	63.9E
SEP 27	16 14 41.7	-8-53-13.6	30.49271	30.00723	25.011	13.9	0.1	-18.6	342.5	77.2	204.3	60.2E
OCT 1	16 15 3.5	-8-55-55.1	30.54932	30.00815	23.978	13.9	0.1	-18.7	208.0	77.2	204.3	56.5E
OCT 5	16 15 27.1	-8-58-36.9	30.60341	30.00907	22.829	13.9	0.1	-18.8	73.5	77.1	204.4	52.8E
OCT 9	16 15 52.3	-9-1-18.5	30.65472	30.00999	21.575	13.9	0.1	-18.9	299.0	77.1	204.4	49.1E
OCT 13	16 16 19.0	-9-3-59.5	30.70303	30.01091	20.229	13.9	0.1	-19.0	164.5	77.0	204.4	45.4E
OCT 17	16 16 47.2	-9-6-38.8	30.74813	30.01184	18.803	13.9	0.1	-19.1	30.0	77.0	204.5	41.7E
OCT 21	16 17 16.8	-9-9-16.3	30.78985	30.01276	17.296	13.9	0.1	-19.2	255.5	77.0	204.5	38.1E
OCT 25	16 17 47.6	-9-11-51.5	30.82798	30.01369	15.704	13.9	0.1	-19.3	121.0	76.9	204.5	34.5E
OCT 29	16 18 19.6	-9-14-23.7	30.86235	30.01462	14.032	13.9	0.1	-19.4	346.6	76.9	204.5	30.9E
NOV 2	16 18 52.6	-9-16-52.2	30.89277	30.01555	12.288	13.9	0.1	-19.6	212.1	76.8	204.6	27.4E
NOV 6	16 19 26.6	-9-19-16.8	30.91909	30.01648	10.485	13.9	0.1	-19.7	77.6	76.8	204.6	24.0E
NOV 10	16 20 1.4	-9-21-36.9	30.94119	30.01741	8.639	13.9	0.1	-19.8	303.1	76.7	204.6	20.8E
NOV 14	16 20 36.8	-9-23-51.8	30.95898	30.01834	6.762	13.9	0.1	-20.0	168.6	76.7	204.6	17.8E
NOV 18	16 21 12.8	-9-26-1.4	30.97241	30.01928	4.855	13.9	0.1	-20.1	34.1	76.6	204.7	15.1E
NOV 22	16 21 49.1	-9-28-5.2	30.98140	30.02021	2.918	13.9	0.1	-20.2	259.7	76.6	204.7	13.1E
NOV 26	16 22 25.8	-9-30-2.7	30.98588	30.02115	0.957	13.8	0.1	-20.4	125.2	76.5	204.7	12.0E
NOV 30	16 23 2.6	-9-31-53.5	30.98581	30.02209	-1.018	13.8	0.1	-20.5	350.7			

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 1	16 27 46.1	-9-42 -7.1	30.82575	30.02964	-15.903	13.9	0.1	-21.6	354.8	76.1	205.0	35.4W	
JAN 5	16 28 18.1	-9-42-46.8	30.78713	30.03059	-17.522	13.9	0.1	-21.7	220.3	76.1	205.0	39.1W	
JAN 9	16 28 48.9	-9-43-17.8	30.74487	30.03154	-19.049	13.9	0.1	-21.8	85.8	76.0	205.0	42.9W	
JAN 13	16 29 18.4	-9-43-40.4	30.69919	30.03249	-20.486	13.9	0.1	-22.0	311.3	76.0	205.0	46.6W	
JAN 17	16 29 46.5	-9-43-54.6	30.65029	30.03344	-21.834	13.9	0.1	-22.1	176.8	76.0	205.1	50.4W	
JAN 21	16 30 13.0	-9-44 -0.2	30.59838	30.03440	-23.087	13.9	0.1	-22.2	42.3	75.9	205.1	54.3W	
JAN 25	16 30 38.0	-9-43-57.6	30.54370	30.03535	-24.235	13.9	0.1	-22.3	267.8	75.9	205.1	58.1W	
JAN 29	16 31 1.2	-9-43-47.2	30.48650	30.03631	-25.264	13.9	0.1	-22.4	133.3	75.9	205.1	62.0W	
FEB 2	16 31 22.6	-9-43-28.7	30.42708	30.03727	-26.162	13.9	0.1	-22.5	358.8	75.9	205.2	65.8W	
FEB 6	16 31 42.1	-9-43 -2.4	30.36573	30.03823	-26.925	13.9	0.1	-22.5	224.3	75.8	205.2	69.7W	
FEB 10	16 31 59.6	-9-42-29.0	30.30277	30.03919	-27.560	13.9	0.1	-22.6	89.8	75.8	205.2	73.6W	
FEB 14	16 32 15.1	-9-41-48.6	30.23849	30.04015	-28.069	13.9	0.1	-22.7	315.2	75.8	205.2	77.5W	
FEB 18	16 32 28.5	-9-41 -1.4	30.17318	30.04111	-28.450	13.9	0.1	-22.7	180.7	75.8	205.3	81.4W	
FEB 22	16 32 39.8	-9-40 -7.9	30.10715	30.04208	-28.696	13.8	0.1	-22.8	46.2	75.8	205.3	85.3W	
FEB 26	16 32 49.0	-9-39 -8.7	30.04070	30.04304	-28.800	13.8	0.1	-22.8	271.6	75.8	205.3	89.2W	
MAR 2	16 32 55.9	-9-38 -3.9	29.97420	30.04401	-28.752	13.8	0.1	-22.8	137.1	75.8	205.4	93.1W	
MAR 6	16 33 0.6	-9-36-54.1	29.90797	30.04498	-28.557	13.8	0.1	-22.9	2.5	75.8	205.4	97.0W	
MAR 10	16 33 3.2	-9-35-40.0	29.84236	30.04594	-28.225	13.8	0.1	-22.9	228.0	75.8	205.4	100.9W	
MAR 14	16 33 3.6	-9-34-22.0	29.77766	30.04691	-27.764	13.8	0.1	-22.9	93.4	75.8	205.4	104.8W	
MAR 18	16 33 1.8	-9-33 -0.5	29.71417	30.04789	-27.174	13.8	0.1	-22.9	318.9	75.8	205.5	108.7W	
MAR 22	16 32 57.9	-9-31-36.2	29.65220	30.04886	-26.455	13.8	0.1	-22.9	184.3	75.8	205.5	112.6W	
MAR 26	16 32 51.9	-9-30 -9.7	29.59204	30.04983	-25.603	13.8	0.1	-22.9	49.8	75.9	205.5	116.5W	
MAR 30	16 32 43.8	-9-28-41.4	29.53401	30.05081	-24.614	13.8	0.1	-22.8	275.2	75.9	205.5	120.3W	
APR 3	16 32 33.8	-9-27-12.0	29.47841	30.05178	-23.499	13.8	0.1	-22.8	140.6	75.9	205.6	124.2W	
APR 7	16 32 21.9	-9-25-42.3	29.42551	30.05276	-22.276	13.8	0.1	-22.8	6.1	75.9	205.6	128.0W	
APR 11	16 32 8.2	-9-24-12.7	29.37556	30.05374	-20.952	13.8	0.1	-22.7	231.5	75.9	205.6	131.9W	
APR 15	16 31 52.8	-9-22-43.8	29.32877	30.05472	-19.534	13.8	0.1	-22.7	96.9	76.0	205.6	135.7W	
APR 19	16 31 35.8	-9-21-16.2	29.28537	30.05570	-18.023	13.8	0.1	-22.6	322.3	76.0	205.7	139.5W	
APR 23	16 31 17.2	-9-19-50.7	29.24557	30.05668	-16.420	13.8	0.1	-22.5	187.7	76.0	205.7	143.2W	
APR 27	16 30 57.3	-9-18-27.5	29.20957	30.05767	-14.727	13.8	0.1	-22.5	53.2	76.1	205.7	146.9W	
MAY 1	16 30 36.2	-9-17 -7.5	29.17757	30.05865	-12.959	13.7	0.1	-22.4	278.6	76.1	205.8	150.5W	
MAY 5	16 30 13.9	-9-15-51.3	29.14973	30.05964	-11.137	13.7	0.1	-22.3	144.0	76.1	205.8	154.0W	
MAY 9	16 29 50.7	-9-14-39.2	29.12615	30.06062	-9.270	13.7	0.1	-22.2	9.4	76.2	205.8	157.4W	
MAY 13	16 29 26.6	-9-13-31.7	29.10692	30.06161	-7.366	13.7	0.1	-22.1	234.8	76.2	205.8	160.6W	
MAY 17	16 29 1.9	-9-12-29.6	29.09213	30.06260	-5.429	13.7	0.1	-22.0	100.2	76.2	205.9	163.4W	
MAY 21	16 28 36.7	-9-11-33.2	29.08185	30.06359	-3.461	13.7	0.1	-21.9	325.6	76.3	205.9	165.7W	
MAY 25	16 28 11.1	-9-10-42.7	29.07616	30.06459	-1.467	13.7	0.1	-21.8	191.0	76.3	205.9	167.2W	
MAY 29	16 27 45.3	-9 -9-58.8	29.07508	30.06558	0.535	13.7	0.1	-21.7	56.4	76.3	205.9	167.6W	
JUN 2	16 27 19.4	-9 -9-22.0	29.07861	30.06657	2.526	13.7	0.1	-21.6	281.9	76.3	206.0	166.7E	
JUN 6	16 26 53.6	-9 -8-52.2	29.08672	30.06757	4.493	13.7	0.1	-21.5	147.3	76.4	206.0	164.9E	
JUN 10	16 26 28.2	-9 -8-30.0	29.09935	30.06857	6.433	13.7	0.1	-21.4	12.7	76.4	206.0	162.4E	
JUN 14	16 26 3.1	-9 -8-15.7	29.11642	30.06956	8.342	13.7	0.1	-21.3	238.1	76.4	206.0	159.5E	
JUN 18	16 25 38.6	-9 -8 -9.3	29.13786	30.07056	10.218	13.7	0.1	-21.2	103.5	76.5	206.1	156.3E	
JUN 22	16 25 14.8	-9 -8-10.9	29.16359	30.07156	12.055	13.7	0.1	-21.1	328.9	76.5	206.1	152.9E	
JUN 26	16 24 51.9	-9 -8-21.0	29.19351	30.07256	13.834	13.7	0.1	-21.0	194.3	76.5	206.1	149.4E	
JUN 30	16 24 30.0	-9 -8-39.6	29.22745	30.07357	15.539	13.8	0.1	-20.9	59.8	76.5	206.2	145.8E	
JUL 4	16 24 9.2	-9 -9 -6.5	29.26524	30.07457	17.162	13.8	0.1	-20.9	285.2	76.5	206.2	142.2E	
JUL 8	16 23 49.7	-9 -9-41.9	29.30668	30.07558	18.701	13.8	0.1	-20.8	150.6	76.6	206.2	138.5E	
JUL 12	16 23 31.5	-9-10-25.9	29.35157	30.07658	20.155	13.8	0.1	-20.7	16.0	76.6	206.2	134.8E	
JUL 16	16 23 14.8	-9-11-18.1	29.39973	30.07759	21.525	13.8	0.1	-20.6	241.5	76.6	206.3	131.1E	
JUL 20	16 22 59.7	-9-12-18.5	29.45095	30.07860	22.804	13.8	0.1	-20.6	106.9	76.6	206.3	127.4E	
JUL 24	16 22 46.2	-9-13-27.1	29.50501	30.07961	23.978	13.8	0.1	-20.5	332.3	76.6	206.3	123.6E	
JUL 28	16 22 34.5	-9-14-43.7	29.56164	30.08062	25.032	13.8	0.1	-20.5	197.8	76.6	206.3	119.9E	
AUG 1	16 22 24.7	-9-16 -7.8	29.62057	30.08164	25.965	13.8	0.1	-20.4	63.2	76.6	206.4	116.2E	
AUG 5	16 22 16.7	-9-17-39.3	29.68152	30.08265	26.777	13.8	0.1	-20.4	288.7	76.6	206.4	112.4E	
AUG 9	16 22 10.8	-9-19-18.2	29.74420	30.08367	27.472	13.8	0.1	-20.3	154.1	76.6	206.4	108.7E	
AUG 13	16 22 6.7	-9-21 -3.6	29.80836	30.08468	28.054	13.8	0.1	-20.3	19.6	76.6	206.4	104.9E	
AUG 17	16 22 4.8	-9-22-55.4	29.87373	30.08570	28.517	13.8	0.1	-20.3	245.0	76.6	206.5	101.1E	
AUG 21	16 22 4.9	-9-24-53.5	29.94002	30.08672	28.849	13.8	0.1	-20.3	110.5	76.6	206.5	97.4E	
AUG 25	16 22 7.0	-9-26-57.2	30.00692	30.08774	29.043	13.8	0.1	-20.3	336.0	76.6	206.5	93.6E	
AUG 29	16 22 11.3	-9-29 -6.0	30.07410	30.08876	29.100	13.9	0.1	-20.3	201.4	76.5	206.5	89.9E	
SEP 2	16 22 17.7	-9-31-19.6	30.14127	30.08979	29.026	13.9	0.1	-20.3	66.9	76.5	206.6	86.1E	
SEP 6	16 22 26.2	-9-33-37.6	30.20812	30.09081	28.827	13.9	0.1	-20.4	292.4	76.5	206.6	82.4E	
SEP 10	16 22 36.7	-9-35-59.2	30.27437	30.09184	28.511	13.9	0.1	-20.4	157.9	76.5	206.6	78.6E	
SEP 14	16 22 49.3	-9-38-24.0	30.33976	30.09287	28.074	13.9	0.1	-20.4	23.4	76.5	206.7	74.9E	
SEP 18	16 23 3.9	-9-40-51.9	30.40399	30.09389	27.507	13.9	0.1	-20.5	248.8	76.4	206.7	71.1E	
SEP 22	16 23 20.4	-9-43-21.9	30.46675	30.09492	26.809	13.9	0.1	-20.5	114.3	76.4	206.7	67.4E	
SEP 26	16 23 38.9	-9-45-53.5	30.52776	30.09595	25.984	13.9	0.1	-20.6	339.8	76.4	206.7	63.6E	
SEP 30	16 23 59.2	-9-48-26.4	30.58672	30.09699	25.043	13.9	0.1	-20.7	205.3	76.3	206.8	59.9E	
OCT 4	16 24 21.3	-9-51 0.0	30.64339	30.09802	23.995	13.9	0.1	-20.7	70.8	76.3	206.8	56.2E	
OCT 8	16 24 45.1	-9-53-33.5	30.69752	30.09905	22.851	13.9	0.1	-20.8	296.3	76.2	206.8	52.5E	
OCT 12	16 25 10.6	-9-56 -6.5	30.74890	30.10009	21.608	13.9	0.1	-20.9	161.8	76.2	206.8	48.7E	
OCT 16	16 25 37.6	-9-58-38.7	30.79728	30.10113	20.261	13.9	0.1	-21.0	27.3	76.1	206.9	45.0E	
OCT 20	16 26 6.0	-10 -1 -9.3	30.84244	30.10217	18.814	13.9	0.1	-21.1	252.8	76.1	206.9	41.4E	
OCT 24	16 26 35.9	-10 -3-37.8	30.88414	30.10321	17.275	13.9	0.1	-21.2	118.3	76.1	206.9	37.7E	
OCT 28	16 27 6.9	-10 -6 -3.8	30.92220	30.10425	15.657	13.9	0.1	-21.3	343.9	76.0	206.9	34.1E	
NOV 1	16 27 39.2	-10 -8-26.7	30.95644	30.10529	13.974	13.9	0.1	-21.5	209.4	76.0	207.0	30.5E	
NOV 5	16 28 12.4	-10-10-45.9	30.98672	30.10633	12.237	13.9	0.1	-21.6	74.9	75.9	207.0	27.0E	
NOV 9	16 28 46.5	-10-13 -1.1	31.01294	30.10738	10.445	13.9	0.1	-21.7	300.4	75.8	207.0	23.5E	
NOV 13	16 29 21.4	-10-15-12.0	31.03494	30.10842	8.596	13.9	0.1	-21.8	165.9	75.8	207.1	20.3E	
NOV 17	16 29 57.0	-10-17-17.8	31.05262	30.10947	6.698	13.9	0.1	-22.0	31.4	75.7	207.1	17.2E	
NOV 21	16 30 33.1	-10-19-18.3	31.06587	30.11052	4.762	13.9	0.1	-22.1	257.0	75.7	207.1	14.5E	
NOV 25	16 31 9.6	-10-21-13.1	31.07461	30.11157	2.804	13.9	0.1	-22.2	122.5	75.6	207.1	12.5E	
NOV 29	16 31 46.4	-10-23 -1.9	31.07882	30.11262	0.838	13.9	0.1	-22.4	348.0				

Date (O DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	16 37 6.5	-10-34 -0.3		30.91635	30.12213	-15.995	13.9	0.1	-23.6	217.6	75.1	207.4	35.6W
JAN 8	16 37 38.3	-10-34-34.9		30.87752	30.12320	-17.609	13.9	0.1	-23.7	83.2	75.1	207.4	39.3W
JAN 12	16 38 9.0	-10-35 -1.2		30.83505	30.12426	-19.148	13.9	0.1	-23.9	308.7	75.0	207.4	43.1W
JAN 16	16 38 38.3	-10-35-19.6		30.78912	30.12533	-20.600	13.9	0.1	-24.0	174.2	75.0	207.5	46.9W
JAN 20	16 39 6.3	-10-35-30.2		30.73995	30.12640	-21.951	13.9	0.1	-24.1	39.7	75.0	207.5	50.7W
JAN 24	16 39 32.6	-10-35-32.9		30.68779	30.12747	-23.188	13.9	0.1	-24.2	265.2	74.9	207.5	54.5W
JAN 28	16 39 57.3	-10-35-27.8		30.63291	30.12854	-24.305	13.9	0.1	-24.3	130.7	74.9	207.6	58.4W
FEB 1	16 40 20.2	-10-35-15.4		30.57558	30.12961	-25.308	13.9	0.1	-24.4	356.1	74.9	207.6	62.3W
FEB 5	16 40 41.3	-10-34-55.8		30.51606	30.13068	-26.199	13.9	0.1	-24.5	221.6	74.8	207.6	66.1W
FEB 9	16 41 0.5	-10-34-29.1		30.45462	30.13175	-26.971	13.9	0.1	-24.5	87.1	74.8	207.6	70.0W
FEB 13	16 41 17.8	-10-33-55.7		30.39155	30.13283	-27.615	13.9	0.1	-24.6	312.6	74.8	207.7	73.9W
FEB 17	16 41 33.0	-10-33-16.1		30.32714	30.13390	-28.120	13.9	0.1	-24.7	178.1	74.8	207.7	77.8W
FEB 21	16 41 46.1	-10-32-30.2		30.26174	30.13498	-28.478	13.9	0.1	-24.7	43.5	74.8	207.7	81.7W
FEB 25	16 41 57.1	-10-31-38.5		30.19567	30.13606	-28.691	13.9	0.1	-24.8	269.0	74.8	207.7	85.6W
MAR 1	16 42 5.9	-10-30-41.9		30.12928	30.13714	-28.769	13.9	0.1	-24.8	134.5	74.8	207.8	89.5W
MAR 5	16 42 12.5	-10-29-40.3		30.06285	30.13822	-28.715	13.9	0.1	-24.8	359.9	74.8	207.8	93.4W
MAR 9	16 42 16.9	-10-28-34.3		29.99670	30.13931	-28.529	13.8	0.1	-24.9	225.4	74.8	207.8	97.3W
MAR 13	16 42 19.2	-10-27-24.4		29.93114	30.14039	-28.204	13.8	0.1	-24.9	90.9	74.8	207.8	101.2W
MAR 17	16 42 19.2	-10-26-11.3		29.86650	30.14148	-27.736	13.8	0.1	-24.9	316.3	74.8	207.9	105.1W
MAR 21	16 42 17.1	-10-24-55.0		29.80310	30.14256	-27.122	13.8	0.1	-24.9	181.7	74.8	207.9	109.0W
MAR 25	16 42 12.9	-10-23-36.4		29.74129	30.14365	-26.370	13.8	0.1	-24.9	47.2	74.8	207.9	112.9W
MAR 29	16 42 6.6	-10-22-16.3		29.68136	30.14474	-25.496	13.8	0.1	-24.8	272.6	74.8	207.9	116.8W
APR 2	16 41 58.2	-10-20-54.7		29.62357	30.14583	-24.507	13.8	0.1	-24.8	138.1	74.8	208.0	120.7W
APR 6	16 41 47.9	-10-19-32.3		29.56821	30.14692	-23.404	13.8	0.1	-24.8	3.5	74.9	208.0	124.5W
APR 10	16 41 35.7	-10-18 -9.9		29.51552	30.14802	-22.188	13.8	0.1	-24.7	228.9	74.9	208.0	128.4W
APR 14	16 41 21.7	-10-16-48.0		29.46578	30.14911	-20.857	13.8	0.1	-24.7	94.3	74.9	208.1	132.2W
APR 18	16 41 6.0	-10-15-26.8		29.41924	30.15021	-19.415	13.8	0.1	-24.6	319.8	75.0	208.1	136.1W
APR 22	16 40 48.8	-10-14 -7.3		29.37614	30.15131	-17.876	13.8	0.1	-24.6	185.2	75.0	208.1	139.8W
APR 26	16 40 30.0	-10-12-50.0		29.33670	30.15240	-16.258	13.8	0.1	-24.5	50.6	75.0	208.1	143.6W
APR 30	16 40 9.9	-10-11-35.2		29.30107	30.15350	-14.571	13.8	0.1	-24.4	276.0	75.0	208.2	147.3W
MAY 4	16 39 48.5	-10-10-23.5		29.26942	30.15461	-12.819	13.8	0.1	-24.4	141.4	75.1	208.2	150.9W
MAY 8	16 39 26.1	-10 -9-15.6		29.24189	30.15571	-11.005	13.8	0.1	-24.3	6.8	75.1	208.2	154.5W
MAY 12	16 39 2.7	-10 -8-11.9		29.21861	30.15681	-9.132	13.7	0.1	-24.2	232.3	75.2	208.2	157.9W
MAY 16	16 38 38.5	-10 -7-12.6		29.19973	30.15792	-7.205	13.7	0.1	-24.1	97.7	75.2	208.3	161.1W
MAY 20	16 38 13.7	-10 -6-18.5		29.18534	30.15902	-5.244	13.7	0.1	-24.0	323.1	75.2	208.3	163.9W
MAY 24	16 37 48.3	-10 -5-30.0		29.17550	30.16013	-3.268	13.7	0.1	-23.9	188.5	75.3	208.3	166.3W
MAY 28	16 37 22.6	-10 -4-47.2		29.17024	30.16124	-1.286	13.7	0.1	-23.8	53.9	75.3	208.3	167.8W
JUN 1	16 36 56.7	-10 -4-10.7		29.16956	30.16235	0.698	13.7	0.1	-23.7	279.3	75.3	208.4	168.1W
JUN 5	16 36 30.9	-10 -3-41.0		29.17346	30.16346	2.679	13.7	0.1	-23.6	144.7	75.4	208.4	167.2E
JUN 9	16 36 5.1	-10 -3-18.0		29.18193	30.16457	4.654	13.7	0.1	-23.5	10.1	75.4	208.4	165.2E
JUN 13	16 35 39.5	-10 -3 -1.9		29.19494	30.16569	6.616	13.7	0.1	-23.4	235.5	75.4	208.4	162.6E
JUN 17	16 35 14.5	-10 -2-53.5		29.21246	30.16680	8.544	13.7	0.1	-23.3	100.9	75.5	208.5	159.6E
JUN 21	16 34 50.0	-10 -2-52.7		29.23438	30.16792	10.422	13.7	0.1	-23.2	326.4	75.5	208.5	156.3E
JUN 25	16 34 26.3	-10 -2-59.4		29.26056	30.16904	12.241	13.8	0.1	-23.1	191.8	75.5	208.5	152.9E
JUN 29	16 34 3.4	-10 -3-13.9		29.29088	30.17015	14.000	13.8	0.1	-23.0	57.2	75.5	208.6	149.4E
JUL 3	16 33 41.6	-10 -3-36.5		29.32519	30.17127	15.696	13.8	0.1	-22.9	282.6	75.6	208.6	145.8E
JUL 7	16 33 20.9	-10 -4 -6.9		29.36335	30.17240	17.328	13.8	0.1	-22.8	148.0	75.6	208.6	142.1E
JUL 11	16 33 1.5	-10 -4-45.0		29.40520	30.17352	18.888	13.8	0.1	-22.8	13.5	75.6	208.6	138.5E
JUL 15	16 32 43.4	-10 -5-31.2		29.45055	30.17464	20.357	13.8	0.1	-22.7	238.9	75.6	208.7	134.7E
JUL 19	16 32 26.8	-10 -6-25.2		29.49917	30.17577	21.721	13.8	0.1	-22.6	104.3	75.6	208.7	131.0E
JUL 23	16 32 11.9	-10 -7-26.7		29.55082	30.17689	22.979	13.8	0.1	-22.6	329.8	75.6	208.7	127.3E
JUL 27	16 31 58.6	-10 -8-35.8		29.60526	30.17802	24.130	13.8	0.1	-22.5	195.2	75.7	208.7	123.5E
JUL 31	16 31 47.1	-10 -9-52.4		29.66223	30.17915	25.177	13.8	0.1	-22.4	60.6	75.7	208.8	119.8E
AUG 4	16 31 37.4	-10 -11-15.8		29.72150	30.18028	26.118	13.8	0.1	-22.4	286.1	75.7	208.8	116.0E
AUG 8	16 31 29.7	-10 -12-45.9		29.78282	30.18141	26.948	13.8	0.1	-22.4	151.5	75.7	208.8	112.3E
AUG 12	16 31 23.9	-10 -14-22.9		29.84591	30.18254	27.653	13.8	0.1	-22.3	17.0	75.7	208.8	108.5E
AUG 16	16 31 20.1	-10 -16 -6.0		29.91048	30.18368	28.222	13.8	0.1	-22.3	242.4	75.6	208.9	104.7E
AUG 20	16 31 18.4	-10 -17-54.9		29.97620	30.18481	28.659	13.9	0.1	-22.3	107.9	75.6	208.9	101.0E
AUG 24	16 31 18.8	-10 -19-49.3		30.04279	30.18595	28.967	13.9	0.1	-22.3	333.3	75.6	208.9	97.2E
AUG 28	16 31 21.2	-10 -21-49.0		30.10995	30.18709	29.152	13.9	0.1	-22.3	198.8	75.6	208.9	93.4E
SEP 1	16 31 25.7	-10 -23-53.1		30.17739	30.18823	29.217	13.9	0.1	-22.3	64.3	75.6	209.0	89.7E
SEP 5	16 31 32.4	-10 -26 -1.5		30.24484	30.18937	29.156	13.9	0.1	-22.3	289.8	75.6	209.0	85.9E
SEP 9	16 31 41.1	-10 -28-13.9		30.31200	30.19051	28.960	13.9	0.1	-22.3	155.2	75.5	209.0	82.1E
SEP 13	16 31 51.9	-10 -30-29.6		30.37854	30.19165	28.625	13.9	0.1	-22.4	20.7	75.5	209.1	78.4E
SEP 17	16 32 4.8	-10 -32-48.0		30.44415	30.19280	28.157	13.9	0.1	-22.4	246.2	75.5	209.1	74.6E
SEP 21	16 32 19.7	-10 -35 -8.9		30.50854	30.19394	27.564	13.9	0.1	-22.5	111.7	75.5	209.1	70.8E
SEP 25	16 32 36.5	-10 -37-31.6		30.57142	30.19509	26.856	13.9	0.1	-22.5	337.2	75.4	209.1	67.1E
SEP 29	16 32 55.2	-10 -39-55.5		30.63254	30.19624	26.037	13.9	0.1	-22.6	202.7	75.4	209.2	63.3E
OCT 3	16 33 15.9	-10 -42-20.4		30.69164	30.19739	25.106	13.9	0.1	-22.7	68.2	75.3	209.2	59.6E
OCT 7	16 33 38.2	-10 -44-45.7		30.74845	30.19854	24.055	13.9	0.1	-22.7	293.7	75.3	209.2	55.8E
OCT 11	16 34 2.3	-10 -47-10.7		30.80270	30.19969	22.886	13.9	0.1	-22.8	159.2	75.2	209.2	52.1E
OCT 15	16 34 28.0	-10 -49-35.0		30.85411	30.20084	21.609	13.9	0.1	-22.9	24.7	75.2	209.3	48.4E
OCT 19	16 34 55.3	-10 -51-58.2		30.90247	30.20200	20.237	13.9	0.1	-23.0	250.2	75.1	209.3	44.7E
OCT 23	16 35 24.0	-10 -54-19.7		30.94756	30.20316	18.781	13.9	0.1	-23.1	115.7	75.1	209.3	41.0E
OCT 27	16 35 54.1	-10 -56-38.7		30.98919	30.20431	17.249	13.9	0.1	-23.2	341.2	75.0	209.3	37.3E
OCT 31	16 36 25.4	-10 -58-55.3		31.02720	30.20547	15.640	13.9	0.1	-23.3	206.7	75.0	209.4	33.6E
NOV 4	16 36 57.8	-11 -1 -8.8		31.06140	30.20663	13.950	13.9	0.1	-23.5	72.2	74.9	209.4	30.0E
NOV 8	16 37 31.2	-11 -3-18.5		31.09160	30.20779	12.186	13.9	0.1	-23.6	297.7	74.9	209.4	26.5E
NOV 12	16 38 5.5	-11 -5-24.2		31.11766	30.20896	10.363	13.9	0.1	-23.7	163.2	74.8	209.4	23.0E
NOV 16	16 38 40.6	-11 -7-25.7		31.13945	30.21012	8.493	13.9	0.1	-23.8	28.8	74.8	209.5	19.7E
NOV 20	16 39 16.3	-11 -9-22.1		31.15688	30.21129	6.591	13.9	0.1	-24.0	254.3	74.7	209.5	16.6E

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _S	Solar Elong
JAN 3	16 45 52.9	-11-23-54.4	31.05270	30.22420	-14.440	13.9	0.1	-25.5	215.0	74.1	209.8	32.1W	
JAN 7	16 46 25.8	-11-24-31.2	31.01737	30.22538	-16.136	13.9	0.1	-25.6	80.5	74.0	209.8	35.8W	
JAN 11	16 46 57.5	-11-25-0.5	30.97822	30.22656	-17.751	13.9	0.1	-25.7	306.0	74.0	209.8	39.6W	
JAN 15	16 47 28.0	-11-25-22.2	30.93543	30.22775	-19.274	13.9	0.1	-25.8	171.5	73.9	209.9	43.4W	
JAN 19	16 47 57.1	-11-25-36.4	30.88924	30.22893	-20.698	13.9	0.1	-25.9	37.0	73.9	209.9	47.2W	
JAN 23	16 48 24.8	-11-25-43.6	30.83988	30.23012	-22.026	13.9	0.1	-26.1	262.5	73.8	209.9	51.0W	
JAN 27	16 48 50.9	-11-25-43.4	30.78755	30.23131	-23.260	13.9	0.1	-26.2	128.0	73.8	209.9	54.8W	
JAN 31	16 49 15.4	-11-25-36.1	30.73249	30.23250	-24.388	13.9	0.1	-26.2	353.5	73.8	210.0	58.7W	
FEB 4	16 49 38.1	-11-25-22.0	30.67496	30.23369	-25.400	13.9	0.1	-26.3	219.0	73.7	210.0	62.6W	
FEB 8	16 49 58.9	-11-25-1.4	30.61524	30.23488	-26.283	13.9	0.1	-26.4	84.5	73.7	210.0	66.5W	
FEB 12	16 50 17.8	-11-24-34.3	30.55363	30.23607	-27.030	13.9	0.1	-26.5	310.0	73.7	210.1	70.4W	
FEB 16	16 50 34.8	-11-24-1.0	30.49046	30.23727	-27.640	13.9	0.1	-26.6	175.5	73.7	210.1	74.2W	
FEB 20	16 50 49.6	-11-23-22.3	30.42603	30.23846	-28.120	13.9	0.1	-26.6	41.0	73.7	210.1	78.1W	
FEB 24	16 51 2.4	-11-22-38.0	30.36063	30.23966	-28.475	13.9	0.1	-26.7	266.4	73.7	210.1	82.0W	
FEB 28	16 51 13.1	-11-21-48.5	30.29456	30.24086	-28.697	13.9	0.1	-26.7	131.9	73.6	210.2	86.0W	
MAR 3	16 51 21.6	-11-20-54.6	30.22815	30.24206	-28.779	13.9	0.1	-26.8	357.4	73.6	210.2	89.9W	
MAR 7	16 51 27.8	-11-19-56.4	30.16171	30.24326	-28.713	13.9	0.1	-26.8	222.8	73.6	210.2	93.8W	
MAR 11	16 51 31.9	-11-18-54.2	30.09560	30.24446	-28.498	13.9	0.1	-26.8	88.3	73.6	210.2	97.7W	
MAR 15	16 51 33.8	-11-17-48.8	30.03015	30.24566	-28.140	13.9	0.1	-26.8	313.7	73.6	210.3	101.6W	
MAR 19	16 51 33.5	-11-16-40.7	29.96568	30.24687	-27.650	13.9	0.1	-26.8	179.2	73.7	210.3	105.5W	
MAR 23	16 51 31.1	-11-15-30.0	29.90249	30.24807	-27.037	13.8	0.1	-26.8	44.6	73.7	210.3	109.4W	
MAR 27	16 51 26.5	-11-14-17.4	29.84085	30.24928	-26.296	13.8	0.1	-26.8	270.1	73.7	210.3	113.3W	
MAR 31	16 51 19.9	-11-13-3.6	29.78109	30.25049	-25.425	13.8	0.1	-26.8	135.5	73.7	210.4	117.2W	
APR 4	16 51 11.2	-11-11-48.9	29.72348	30.25170	-24.423	13.8	0.1	-26.8	0.9	73.7	210.4	121.1W	
APR 8	16 51 0.6	-11-10-33.6	29.66834	30.25291	-23.293	13.8	0.1	-26.7	226.4	73.8	210.4	124.9W	
APR 12	16 50 48.2	-11-9-18.7	29.61594	30.25412	-22.047	13.8	0.1	-26.7	91.8	73.8	210.4	128.8W	
APR 16	16 50 33.9	-11-8-4.6	29.56654	30.25534	-20.702	13.8	0.1	-26.6	317.2	73.8	210.5	132.6W	
APR 20	16 50 18.0	-11-6-51.5	29.52035	30.25655	-19.267	13.8	0.1	-26.6	182.7	73.8	210.5	136.5W	
APR 24	16 50 0.5	-11-5-40.2	29.47759	30.25777	-17.742	13.8	0.1	-26.5	48.1	73.9	210.5	140.2W	
APR 28	16 49 41.5	-11-4-31.2	29.43844	30.25899	-16.128	13.8	0.1	-26.4	273.5	73.9	210.5	144.0W	
MAY 2	16 49 21.1	-11-3-24.8	29.40313	30.26021	-14.430	13.8	0.1	-26.4	138.9	73.9	210.6	147.7W	
MAY 6	16 48 59.6	-11-2-21.5	29.37183	30.26143	-12.652	13.8	0.1	-26.3	4.3	74.0	210.6	151.4W	
MAY 10	16 48 37.0	-11-1-22.0	29.34471	30.26265	-10.814	13.8	0.1	-26.2	229.7	74.0	210.6	155.0W	
MAY 14	16 48 13.4	-11-0-26.7	29.32189	30.26387	-8.934	13.8	0.1	-26.1	95.1	74.1	210.7	158.4W	
MAY 18	16 47 49.1	-10-59-35.7	29.30345	30.26510	-7.021	13.8	0.1	-26.0	320.6	74.1	210.7	161.6W	
MAY 22	16 47 24.2	-10-58-49.7	29.28947	30.26632	-5.077	13.7	0.1	-25.9	186.0	74.1	210.7	164.5W	
MAY 26	16 46 58.7	-10-58-9.1	29.28001	30.26755	-3.106	13.7	0.1	-25.8	51.4	74.2	210.7	166.9W	
MAY 30	16 46 33.0	-10-57-34.0	29.27513	30.26878	-1.112	13.7	0.1	-25.7	276.8	74.2	210.8	168.4W	
JUN 3	16 46 7.0	-10-57-4.8	29.27487	30.27001	0.894	13.7	0.1	-25.6	142.2	74.3	210.8	168.6W	
JUN 7	16 45 41.1	-10-56-42.1	29.27925	30.27124	2.894	13.7	0.1	-25.5	7.6	74.3	210.8	167.6E	
JUN 11	16 45 15.3	-10-56-25.8	29.28822	30.27247	4.869	13.7	0.1	-25.4	233.0	74.3	210.8	165.5E	
JUN 15	16 44 49.8	-10-56-16.2	29.30172	30.27370	6.812	13.8	0.1	-25.3	98.4	74.4	210.9	162.8E	
JUN 19	16 44 24.8	-10-56-13.5	29.31966	30.27494	8.722	13.8	0.1	-25.2	323.8	74.4	210.9	159.7E	
JUN 23	16 44 0.3	-10-56-18.1	29.34198	30.27617	10.595	13.8	0.1	-25.1	189.2	74.4	210.9	156.4E	
JUN 27	16 43 36.6	-10-56-29.7	29.36858	30.27741	12.426	13.8	0.1	-25.0	54.7	74.5	210.9	152.9E	
JUL 1	16 43 13.9	-10-56-48.4	29.39935	30.27865	14.206	13.8	0.1	-25.0	280.1	74.5	211.0	149.4E	
JUL 5	16 42 52.1	-10-57-14.9	29.43415	30.27989	15.916	13.8	0.1	-24.9	145.5	74.5	211.0	145.7E	
JUL 9	16 42 31.5	-10-57-48.6	29.47281	30.28113	17.540	13.8	0.1	-24.8	10.9	74.5	211.0	142.1E	
JUL 13	16 42 12.2	-10-58-29.5	29.51512	30.28238	19.077	13.8	0.1	-24.7	236.3	74.6	211.0	138.4E	
JUL 17	16 41 54.3	-10-59-17.8	29.56088	30.28362	20.526	13.8	0.1	-24.6	101.8	74.6	211.1	134.6E	
JUL 21	16 41 37.9	-11-0-13.3	29.60989	30.28487	21.887	13.8	0.1	-24.6	327.2	74.6	211.1	130.9E	
JUL 25	16 41 23.1	-11-1-15.7	29.66194	30.28611	23.156	13.8	0.1	-24.5	192.6	74.6	211.1	127.2E	
JUL 29	16 41 10.0	-11-2-25.0	29.71680	30.28736	24.325	13.8	0.1	-24.4	58.1	74.6	211.1	123.4E	
AUG 2	16 40 58.7	-11-3-41.3	29.77424	30.28861	25.379	13.8	0.1	-24.4	283.5	74.6	211.2	119.6E	
AUG 6	16 40 49.3	-11-5-3.9	29.83396	30.28986	26.306	13.8	0.1	-24.4	148.9	74.6	211.2	115.9E	
AUG 10	16 40 41.7	-11-6-32.6	29.89568	30.29111	27.109	13.8	0.1	-24.3	14.4	74.6	211.2	112.1E	
AUG 14	16 40 36.2	-11-8-7.5	29.95912	30.29236	27.792	13.9	0.1	-24.3	239.8	74.6	211.3	108.3E	
AUG 18	16 40 32.7	-11-9-47.9	30.02400	30.29362	28.357	13.9	0.1	-24.3	105.3	74.6	211.3	104.5E	
AUG 22	16 40 31.2	-11-11-33.4	30.09005	30.29487	28.804	13.9	0.1	-24.3	330.8	74.6	211.3	100.7E	
AUG 26	16 40 31.8	-11-13-24.0	30.15699	30.29613	29.125	13.9	0.1	-24.2	196.2	74.6	211.3	97.0E	
AUG 30	16 40 34.5	-11-15-19.4	30.22451	30.29739	29.310	13.9	0.1	-24.2	61.7	74.6	211.4	93.2E	
SEP 3	16 40 39.3	-11-17-18.7	30.29230	30.29865	29.353	13.9	0.1	-24.3	287.1	74.5	211.4	89.4E	
SEP 7	16 40 46.3	-11-19-21.7	30.36003	30.29991	29.262	13.9	0.1	-24.3	152.6	74.5	211.4	85.6E	
SEP 11	16 40 55.3	-11-21-28.2	30.42740	30.30117	29.042	13.9	0.1	-24.3	18.1	74.5	211.4	81.9E	
SEP 15	16 41 6.4	-11-23-37.6	30.49413	30.30244	28.701	13.9	0.1	-24.3	243.6	74.5	211.5	78.1E	
SEP 19	16 41 19.5	-11-25-49.1	30.55992	30.30370	28.241	13.9	0.1	-24.4	109.1	74.4	211.5	74.3E	
SEP 23	16 41 34.7	-11-28-2.7	30.62452	30.30497	27.657	13.9	0.1	-24.4	334.5	74.4	211.5	70.5E	
SEP 27	16 41 51.8	-11-30-18.0	30.68761	30.30623	26.942	13.9	0.1	-24.5	200.0	74.3	211.5	66.8E	
OCT 1	16 42 10.8	-11-32-34.1	30.74890	30.30750	26.096	13.9	0.1	-24.6	65.5	74.3	211.6	63.0E	
OCT 5	16 42 31.7	-11-34-50.7	30.80810	30.30877	25.131	13.9	0.1	-24.6	291.0	74.3	211.6	59.2E	
OCT 9	16 42 54.4	-11-37-7.4	30.86493	30.31004	24.056	13.9	0.1	-24.7	156.5	74.2	211.6	55.5E	
OCT 13	16 43 18.7	-11-39-23.6	30.91917	30.31132	22.882	13.9	0.1	-24.8	22.0	74.2	211.6	51.7E	
OCT 17	16 43 44.7	-11-41-38.7	30.97059	30.31259	21.612	13.9	0.1	-24.9	247.5	74.1	211.7	48.0E	
OCT 21	16 44 12.2	-11-43-52.7	31.01896	30.31387	20.246	13.9	0.1	-25.0	113.0	74.1	211.7	44.2E	
OCT 25	16 44 41.2	-11-46-4.8	31.06406	30.31514	18.779	13.9	0.1	-25.1	338.5	74.0	211.7	40.5E	
OCT 29	16 45 11.4	-11-48-14.4	31.10565	30.31642	17.216	13.9	0.1	-25.2	204.1	73.9	211.7	36.8E	
NOV 2	16 45 43.0	-11-50-21.3	31.14355	30.31770	15.574	13.9	0.1	-25.3	69.6	73.9	211.8	33.2E	
NOV 6	16 46 15.6	-11-52-25.1	31.17756	30.31898	13.864	13.9	0.1	-25.4	295.1	73.8	211.8	29.5E	
NOV 10	16 46 49.2	-11-54-25.2	31.20757	30.32026	12.099	13.9	0.1	-25.5	160.6	73.8	211.8	25.9E	
NOV 14	16 47 23.7	-11-56-21.1	31.23343	30.32154	10.285	13.9	0.1	-25.7	26.1	73.7	211.9	22.5E	
NOV 18	16 47 58.9	-11-58-12.9	31.25506	30.32283	8.422	13.9	0.1	-25.8	251.6	73.6	211.9	19.1E	
NOV 22	16 48 34.8	-11-59-59.9	31.27231	30.32411	6.509	13.9	0.1	-25.9	117.2	73.6	211.9	16.0E	
NOV 26	16 49 11.1	-12-1-41.6	31.28511	30.32540	4.557	13.9	0.1	-26.1	342.7	73.5	211.9	13.3E	
NOV 30	16 49												

2001 PLUTO

Geocentric Planetary Ephemeris

2001 PLUTO

Date (0 DT)	RA (h m s)	(Mean) (d ° ' ")	Dec	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 1	16 54 37.7	-12-12-25.9	31.19639	30.33704	-12.839	13.9	0.1	-27.3	212.4	72.9	212.2	28.6W	
JAN 5	16 55 11.3	-12-13 -3.9	31.16470	30.33834	-14.585	13.9	0.1	-27.4	77.9	72.9	212.2	32.3W	
JAN 9	16 55 44.0	-12-13-34.9	31.12907	30.33964	-16.256	13.9	0.1	-27.5	303.4	72.8	212.2	36.1W	
JAN 13	16 56 15.6	-12-13-59.2	31.08966	30.34094	-17.854	13.9	0.1	-27.7	168.9	72.8	212.2	39.8W	
JAN 17	16 56 45.9	-12-14-16.5	31.04664	30.34225	-19.378	13.9	0.1	-27.8	34.4	72.7	212.3	43.6W	
JAN 21	16 57 14.8	-12-14-26.7	31.00019	30.34355	-20.816	13.9	0.1	-27.9	259.9	72.7	212.3	47.5W	
JAN 25	16 57 42.3	-12-14-30.5	30.95054	30.34486	-22.153	13.9	0.1	-28.0	125.4	72.6	212.3	51.3W	
JAN 29	16 58 8.2	-12-14-27.6	30.89793	30.34617	-23.376	13.9	0.1	-28.1	350.9	72.6	212.3	55.2W	
FEB 2	16 58 32.3	12 14-18.1	30.84263	30.34748	-24.479	13.9	0.1	-28.2	216.4	72.6	212.4	59.0W	
FEB 6	16 58 54.7	-12-14 -2.4	30.78493	30.34879	-25.458	13.9	0.1	-28.3	81.9	72.5	212.4	62.9W	
FEB 10	16 59 15.3	-12-13-41.0	30.72510	30.35010	-26.320	13.9	0.1	-28.4	307.4	72.5	212.4	66.8W	
FEB 14	16 59 33.9	-12 13-13.7	30.66341	30.35141	-27.067	13.9	0.1	-28.4	172.9	72.5	212.5	70.7W	
FEB 18	16 59 50.5	-12-12-40.9	30.60014	30.35273	-27.686	13.9	0.1	-28.5	38.4	72.5	212.5	74.6W	
FEB 22	17 0 5.1	-12-12 -3.2	30.53559	30.35404	-28.169	13.9	0.1	-28.6	263.9	72.4	212.5	78.5W	
FEB 26	17 0 17.5	-12-11-20.6	30.47010	30.35536	-28.507	13.9	0.1	-28.6	129.3	72.4	212.5	82.4W	
MAR 2	17 0 27.8	-12-10-33.4	30.40400	30.35668	-28.698	13.9	0.1	-28.6	354.8	72.4	212.6	86.3W	
MAR 6	17 0 35.9	-12 -9-42.3	30.33762	30.35800	-28.746	13.9	0.1	-28.7	220.3	72.4	212.6	90.2W	
MAR 10	17 0 41.9	-12 -8-47.7	30.27128	30.35932	-28.661	13.9	0.1	-28.7	85.7	72.4	212.6	94.1W	
MAR 14	17 0 45.6	-12 -7-49.7	30.20529	30.36064	-28.447	13.9	0.1	-28.7	311.2	72.4	212.6	98.1W	
MAR 18	17 0 47.2	-12 -6-49.0	30.13995	30.36197	-28.098	13.9	0.1	-28.7	176.7	72.4	212.7	102.0W	
MAR 22	17 0 46.6	-12 -5-46.1	30.07557	30.36329	-27.609	13.9	0.1	-28.8	42.1	72.4	212.7	105.9W	
MAR 26	17 0 43.8	-12 -4-41.1	30.01249	30.36462	-26.976	13.9	0.1	-28.7	267.6	72.4	212.7	109.8W	
MAR 30	17 0 38.9	-12 -3-34.5	29.95104	30.36595	-26.205	13.9	0.1	-28.7	133.0	72.5	212.7	113.7W	
APR 3	17 0 32.0	-12 -2-27.2	29.89152	30.36727	-25.304	13.8	0.1	-28.7	358.4	72.5	212.8	117.6W	
APR 7	17 0 23.0	-12 -1-19.6	29.83421	30.36860	-24.288	13.8	0.1	-28.7	223.9	72.5	212.8	121.5W	
APR 11	17 0 12.1	-12 0-11.7	29.77938	30.36994	-23.165	13.8	0.1	-28.6	89.3	72.5	212.8	125.3W	
APR 15	16 59 59.4	-11-59 -4.4	29.72726	30.37127	-21.931	13.8	0.1	-28.6	314.7	72.6	212.8	129.2W	
APR 19	16 59 44.9	-11-57-58.2	29.67813	30.37260	-20.586	13.8	0.1	-28.6	180.2	72.6	212.9	133.0W	
APR 23	16 59 28.7	-11 56-53.2	29.63223	30.37394	-19.132	13.8	0.1	-28.5	45.6	72.6	212.9	136.9W	
APR 27	16 59 10.9	-11-55-50.0	29.58980	30.37527	-17.579	13.8	0.1	-28.4	271.0	72.7	212.9	140.7W	
MAY 1	16 58 51.7	-11-54-49.4	29.55107	30.37661	-15.942	13.8	0.1	-28.4	136.4	72.7	212.9	144.5W	
MAY 5	16 58 31.2	-11-53-51.6	29.51619	30.37795	-14.237	13.8	0.1	-28.3	1.8	72.7	213.0	148.2W	
MAY 9	16 58 9.5	-11-52-56.8	29.48533	30.37929	-12.473	13.8	0.1	-28.2	227.2	72.8	213.0	151.9W	
MAY 13	16 57 46.8	-11-52 -5.8	29.45860	30.38063	-10.650	13.8	0.1	-28.1	92.7	72.8	213.0	155.5W	
MAY 17	16 57 23.1	-11-51-29.8	29.43616	30.38197	-8.770	13.8	0.1	-28.0	318.1	72.9	213.0	158.9W	
MAY 21	16 56 58.6	-11 50-36.1	29.41811	30.38332	-6.841	13.8	0.1	-27.9	183.5	72.9	213.1	162.2W	
MAY 25	16 56 33.5	-11-49-58.0	29.40458	30.38466	-4.872	13.8	0.1	-27.8	48.9	72.9	213.1	165.1W	
MAY 29	16 56 8.0	-11-49-25.4	29.39561	30.38601	-2.883	13.8	0.1	-27.7	274.3	73.0	213.1	167.5W	
JUN 2	16 55 42.2	-11-48-58.0	29.39125	30.38736	-0.891	13.8	0.1	-27.7	139.7	73.0	213.2	169.0W	
JUN 6	16 55 16.2	-11-48-36.2	29.39149	30.38871	1.097	13.8	0.1	-27.6	5.1	73.1	213.2	169.2E	
JUN 10	16 54 50.3	-11-48-20.4	29.39631	30.39006	3.080	13.8	0.1	-27.5	230.5	73.1	213.2	168.0E	
JUN 14	16 54 24.5	-11-48-10.8	29.40571	30.39141	5.055	13.8	0.1	-27.4	95.9	73.2	213.2	165.8E	
JUN 18	16 53 59.0	-11-48 -7.3	29.41965	30.39276	7.014	13.8	0.1	-27.3	321.3	73.2	213.3	163.0E	
JUN 22	16 53 34.0	-11-48-10.2	29.43809	30.39411	8.945	13.8	0.1	-27.2	186.7	73.2	213.3	159.8E	
JUN 26	16 53 9.6	-11-48-20.1	29.46094	30.39547	10.829	13.8	0.1	-27.1	52.2	73.3	213.3	156.5E	
JUN 30	16 52 46.0	-11-48-36.6	29.48807	30.39682	12.652	13.8	0.1	-27.0	277.6	73.3	213.3	152.9E	
JUL 4	16 52 23.3	-11-48-59.7	29.51934	30.39818	14.409	13.8	0.1	-26.9	143.0	73.3	213.4	149.3E	
JUL 8	16 52 1.7	-11-49-29.7	29.55459	30.39954	16.101	13.8	0.1	-26.8	8.4	73.4	213.4	145.7E	
JUL 12	16 51 41.2	-11-50 6.6	29.59367	30.40090	17.726	13.8	0.1	-26.7	233.8	73.4	213.4	142.0E	
JUL 16	16 51 22.1	-11 50-49.9	29.63643	30.40226	19.277	13.8	0.1	-26.6	99.3	73.4	213.4	138.3E	
JUL 20	16 51 4.3	-11 51-40.0	29.68267	30.40363	20.744	13.8	0.1	-26.6	324.7	73.4	213.5	134.5E	
JUL 24	16 50 48.1	-11-51-37.0	29.73219	30.40499	22.109	13.8	0.1	-26.5	190.1	73.4	213.5	130.8E	
JUL 28	16 50 33.5	-11 52-40.2	29.78473	30.40635	23.362	13.8	0.1	-26.4	55.5	73.4	213.5	127.0E	
AUG 1	16 50 20.6	-11-54-49.7	29.84004	30.40772	24.505	13.8	0.1	-26.4	281.0	73.5	213.5	123.2E	
AUG 5	16 50 9.5	-11-56 -5.4	29.89787	30.40909	25.540	13.9	0.1	-26.3	146.4	73.5	213.6	119.4E	
AUG 9	16 50 0.3	-11-57-26.9	29.95796	30.41046	26.467	13.9	0.1	-26.3	11.9	73.5	213.6	115.7E	
AUG 13	16 49 53.0	-11 58-53.7	30.02007	30.41183	27.282	13.9	0.1	-26.2	237.3	73.5	213.6	111.9E	
AUG 17	16 49 47.7	-12 0-26.1	30.08392	30.41320	27.978	13.9	0.1	-26.2	102.7	73.5	213.6	108.1E	
AUG 21	16 49 44.4	12 0-3.8	30.14923	30.41457	28.540	13.9	0.1	-26.2	328.2	73.4	213.7	104.3E	
AUG 25	16 49 43.2	12 -3-45.9	30.21568	30.41595	28.963	13.9	0.1	-26.2	193.7	73.4	213.7	100.5E	
AUG 29	16 49 44.1	12 -5-32.4	30.28295	30.41732	29.254	13.9	0.1	-26.2	59.1	73.4	213.7	96.7E	
SEP 2	16 49 47.1	12 -7 23.1	30.35074	30.41870	29.419	13.9	0.1	-26.2	284.6	73.4	213.7	92.9E	
SEP 6	16 49 52.2	12 -9-17.3	30.41878	30.42008	29.460	13.9	0.1	-26.2	150.1	73.4	213.8	89.1E	
SEP 10	16 49 59.4	12-11-14.6	30.48676	30.42146	29.377	13.9	0.1	-26.2	15.5	73.4	213.8	85.3E	
SEP 14	16 50 8.7	-12-13-14.9	30.55441	30.42284	29.165	13.9	0.1	-26.2	241.0	73.3	213.8	81.6E	
SEP 18	16 50 20.1	-12-15-17.7	30.62141	30.42422	28.814	13.9	0.1	-26.3	106.5	73.3	213.9	77.8E	
SEP 22	16 50 33.6	12 17-22.3	30.68744	30.42560	28.324	13.9	0.1	-26.3	332.0	73.3	213.9	74.0E	
SEP 26	16 50 49.1	-12-19-28.5	30.75218	30.42699	27.706	13.9	0.1	-26.4	197.4	73.2	213.9	70.2E	
SEP 30	16 51 6.5	-12-21-35.9	30.81536	30.42837	26.970	13.9	0.1	-26.4	62.9	73.2	213.9	66.4E	
OCT 4	16 51 25.8	-12-23-43.8	30.87671	30.42976	26.122	13.9	0.1	-26.5	288.4	73.1	214.0	62.6E	
OCT 8	16 51 46.9	12-25-51.7	30.93597	30.43115	25.163	13.9	0.1	-26.6	153.9	73.1	214.0	58.9E	
OCT 12	16 52 9.9	-12-27-59.7	30.99289	30.43254	24.091	13.9	0.1	-26.6	19.4	73.0	214.0	55.1E	
OCT 16	16 52 34.5	-12-30 -6.9	31.04719	30.43393	22.901	13.9	0.1	-26.7	244.9	73.0	214.0	51.3E	
OCT 20	16 53 0.7	-12-32 12.8	31.09862	30.43532	21.599	13.9	0.1	-26.8	110.4	72.9	214.1	47.5E	
OCT 24	16 53 28.5	-12-34-17.3	31.14691	30.43671	20.198	13.9	0.1	-26.9	335.9	72.9	214.1	43.8E	
OCT 28	16 53 57.7	-12-36-19.8	31.19188	30.43811	18.713	13.9	0.1	-27.0	201.4	72.8	214.1	40.1E	
NOV 1	16 54 28.2	-12-38-19.6	31.23332	30.43950	17.151	13.9	0.1	-27.1	67.0	72.7	214.1	36.3E	
NOV 5	16 54 59.9	-12-40-16.5	31.27107	30.44090	15.516	13.9	0.1	-27.2	292.5	72.7	214.2	32.6E	
NOV 9	16 55 32.7	-12-42-10.5	31.30496	30.44230	13.808	13.9	0.1	-27.4	158.0	72.6	214.2	29.0E	
NOV 13	16 56 6.5	-12-44 -0.8	31.33481	30.44370	12.026	13.9	0.1	-27.5	23.5	72.5	214.2	25.4E	
NOV 17	16 56 41.2	-12-45-46.9	31.36048	30.44510	10.180	13.9	0.1	-27.6	249.0	72.5	214.2	21.9E	
NOV 21	16 57 16.6	-12 47-28.9	31.38182	30.44650	8.288	13.9	0.1	-27.7	114.6	72.4	214.3	18.5E	
NOV 25	16 57 52.5	-12 49 -6.2	31.39876	30.44790	6.365	13.9	0.1	-27.9	340.1	72.3	214.3	15.3E	
NOV 29	16 58 29.0	-12 50-38.4	31.4										

Date (0 DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	17 3 55.3	-13 0 -9.6	31.31944	30.46200	-12.968	13.9	0.1	-29.2	75.3	71.6	214.5	28.9W	
JAN 8	17 4 28.8	-13 0 -41.6	31.28745	30.46342	-14.721	13.9	0.1	-29.3	300.8	71.6	214.6	32.6W	
JAN 12	17 5 1.4	-13 -1 -7.1	31.25148	30.46484	-16.407	13.9	0.1	-29.5	166.3	71.5	214.6	36.3W	
JAN 16	17 5 32.8	-13 -1 -26.4	31.21171	30.46626	-18.015	13.9	0.1	-29.6	31.9	71.5	214.6	40.1W	
JAN 20	17 6 2.8	-13 -1 -39.2	31.16832	30.46768	-19.528	13.9	0.1	-29.7	257.4	71.4	214.7	44.0W	
JAN 24	17 6 31.5	-13 -1 -45.5	31.12156	30.46910	-20.940	13.9	0.1	-29.8	122.9	71.4	214.7	47.8W	
JAN 28	17 6 58.7	-13 -1 -45.8	31.07166	30.47052	-22.247	13.9	0.1	-29.9	348.4	71.3	214.7	51.7W	
FEB 1	17 7 24.3	-13 -1 -40.5	31.01885	30.47195	-23.455	13.9	0.1	-30.0	213.9	71.3	214.7	55.5W	
FEB 5	17 7 48.2	-13 -1 -29.0	30.96337	30.47337	-24.560	13.9	0.1	-30.1	79.4	71.2	214.8	59.4W	
FEB 9	17 8 10.3	-13 -1 -12.0	30.90546	30.47480	-25.550	13.9	0.1	-30.2	304.9	71.2	214.8	63.3W	
FEB 13	17 8 30.6	-13 0 -49.9	30.84542	30.47623	-26.412	13.9	0.1	-30.3	170.4	71.2	214.8	67.2W	
FEB 17	17 8 48.9	-13 0 -22.5	30.78354	30.47766	-27.138	13.9	0.1	-30.3	35.9	71.2	214.8	71.1W	
FEB 21	17 9 5.1	-12 -59 -50.2	30.72014	30.47909	-27.725	13.9	0.1	-30.4	261.4	71.1	214.9	75.0W	
FEB 25	17 9 19.4	-12 -59 -13.6	30.65554	30.48052	-28.176	13.9	0.1	-30.5	126.8	71.1	214.9	78.9W	
MAR 1	17 9 31.5	-12 -58 -33.0	30.59006	30.48195	-28.497	13.9	0.1	-30.5	352.3	71.1	214.9	82.8W	
MAR 5	17 9 41.4	-12 -57 -48.4	30.52397	30.48339	-28.690	13.9	0.1	-30.5	217.8	71.1	214.9	86.7W	
MAR 9	17 9 49.2	-12 -57 -0.4	30.45760	30.48482	-28.746	13.9	0.1	-30.6	83.3	71.1	215.0	90.6W	
MAR 13	17 9 54.9	-12 -56 -9.6	30.39127	30.48626	-28.656	13.9	0.1	-30.6	308.7	71.1	215.0	94.5W	
MAR 17	17 9 58.2	-12 -55 -15.8	30.32531	30.48770	-28.419	13.9	0.1	-30.6	174.2	71.1	215.0	98.5W	
MAR 21	17 9 59.4	-12 -54 -19.7	30.26007	30.48914	-28.037	13.9	0.1	-30.6	39.6	71.1	215.0	102.4W	
MAR 25	17 9 58.5	-12 -53 -22.1	30.19588	30.49058	-27.517	13.9	0.1	-30.6	265.1	71.1	215.1	106.3W	
MAR 29	17 9 55.4	-12 -52 -23.1	30.13303	30.49202	-26.872	13.9	0.1	-30.6	130.5	71.1	215.1	110.2W	
APR 2	17 9 50.2	-12 -51 -22.9	30.07181	30.49346	-26.106	13.9	0.1	-30.6	356.0	71.1	215.1	114.1W	
APR 6	17 9 43.0	-12 -50 -22.3	30.01250	30.49491	-25.214	13.9	0.1	-30.6	221.4	71.2	215.1	118.0W	
APR 10	17 9 33.7	-12 -49 -21.7	29.95541	30.49635	-24.193	13.9	0.1	-30.6	86.8	71.2	215.2	121.9W	
APR 14	17 9 22.5	-12 -48 -21.2	29.90082	30.49780	-23.046	13.9	0.1	-30.5	312.3	71.2	215.2	125.8W	
APR 18	17 9 9.5	-12 -47 -21.5	29.84901	30.49925	-21.782	13.8	0.1	-30.5	177.7	71.2	215.2	129.6W	
APR 22	17 8 54.7	-12 -46 -23.2	29.80025	30.50070	-20.412	13.8	0.1	-30.4	43.1	71.3	215.2	133.5W	
APR 26	17 8 38.3	-12 -45 -26.5	29.75476	30.50215	-18.954	13.8	0.1	-30.4	268.6	71.3	215.3	137.3W	
APR 30	17 8 20.3	-12 -44 -31.7	29.71274	30.50360	-17.413	13.8	0.1	-30.3	134.0	71.3	215.3	141.1W	
MAY 4	17 8 1.0	-12 -43 -39.5	29.67437	30.50505	-15.787	13.8	0.1	-30.2	359.4	71.4	215.3	144.9W	
MAY 8	17 7 40.3	-12 -42 -50.2	29.63986	30.50650	-14.077	13.8	0.1	-30.2	224.8	71.4	215.3	148.7W	
MAY 12	17 7 18.4	-12 -42 -3.9	29.60938	30.50796	-12.292	13.8	0.1	-30.1	90.2	71.5	215.4	152.4W	
MAY 16	17 6 55.4	-12 -41 -21.1	29.58311	30.50942	-10.443	13.8	0.1	-30.0	315.6	71.5	215.4	156.0W	
MAY 20	17 6 31.6	-12 -40 -42.6	29.56116	30.51087	-8.546	13.8	0.1	-29.9	181.0	71.6	215.4	159.5W	
MAY 24	17 6 7.1	-12 -40 -8.3	29.54364	30.51233	-6.619	13.8	0.1	-29.8	46.4	71.6	215.4	162.8W	
MAY 28	17 5 42.0	-12 -39 -38.3	29.53059	30.51379	-4.668	13.8	0.1	-29.7	271.9	71.7	215.5	166.8W	
JUN 1	17 5 16.4	-12 -39 -13.5	29.52208	30.51525	-2.693	13.8	0.1	-29.6	137.3	71.7	215.5	168.2W	
JUN 5	17 4 50.5	-12 -38 -53.7	29.51816	30.51672	-0.697	13.8	0.1	-29.5	2.7	71.7	215.5	169.6W	
JUN 9	17 4 24.5	-12 -38 -39.0	29.51886	30.51818	1.310	13.8	0.1	-29.4	228.1	71.8	215.6	169.7E	
JUN 13	17 3 58.5	-12 -38 -30.0	29.52421	30.51965	3.315	13.8	0.1	-29.3	93.5	71.8	215.6	168.4E	
JUN 17	17 3 32.8	-12 -38 -26.9	29.53416	30.52111	5.299	13.8	0.1	-29.2	318.9	71.9	215.6	166.1E	
JUN 21	17 3 7.3	-12 -38 -29.6	29.54866	30.52258	7.248	13.8	0.1	-29.1	184.3	71.9	215.6	163.1E	
JUN 25	17 2 42.4	-12 -38 -38.3	29.56761	30.52405	9.156	13.8	0.1	-29.0	49.7	72.0	215.7	159.9E	
JUN 29	17 2 18.1	-12 -38 -53.3	29.59093	30.52552	11.026	13.8	0.1	-28.9	275.1	72.0	215.7	156.5E	
JUL 3	17 1 54.6	-12 -39 -14.3	29.61852	30.52699	12.853	13.8	0.1	-28.8	140.5	72.0	215.7	152.9E	
JUL 7	17 1 32.0	-12 -39 -41.4	29.65027	30.52846	14.627	13.8	0.1	-28.8	5.9	72.1	215.7	149.3E	
JUL 11	17 1 10.5	-12 -40 -14.8	29.68604	30.52993	16.336	13.8	0.1	-28.7	231.4	72.1	215.8	145.6E	
JUL 15	17 0 50.2	-12 -40 -54.7	29.72568	30.53141	17.963	13.8	0.1	-28.6	96.8	72.1	215.8	141.9E	
JUL 19	17 0 31.2	-12 -41 -40.5	29.76896	30.53288	19.497	13.8	0.1	-28.5	322.2	72.1	215.8	138.1E	
JUL 23	17 0 13.6	-12 -42 -32.4	29.81569	30.53436	20.938	13.8	0.1	-28.4	187.6	72.2	215.8	134.3E	
JUL 27	16 59 57.6	-12 -43 -30.5	29.86563	30.53584	22.288	13.8	0.1	-28.4	53.1	72.2	215.9	130.6E	
JUL 31	16 59 43.2	-12 -44 -34.2	29.91859	30.53732	23.545	13.9	0.1	-28.3	278.5	72.2	215.9	126.8E	
AUG 4	16 59 30.5	-12 -45 -43.4	29.97434	30.53880	24.702	13.9	0.1	-28.3	143.9	72.2	215.9	123.0E	
AUG 8	16 59 19.7	-12 -46 -58.2	30.03263	30.54028	25.748	13.9	0.1	-28.2	9.4	72.2	215.9	119.2E	
AUG 12	16 59 10.7	-12 -48 -18.5	30.09320	30.54176	26.670	13.9	0.1	-28.2	234.8	72.2	216.0	115.4E	
AUG 16	16 59 3.6	-12 -49 -43.5	30.15575	30.54324	27.461	13.9	0.1	-28.1	100.2	72.2	216.0	111.6E	
AUG 20	16 58 58.6	-12 -51 -13.4	30.21998	30.54473	28.127	13.9	0.1	-28.1	325.7	72.2	216.0	107.8E	
AUG 24	16 58 55.6	-12 -52 -47.8	30.28562	30.54621	28.672	13.9	0.1	-28.1	191.1	72.2	216.0	104.0E	
AUG 28	16 58 54.7	-12 -54 -26.1	30.35237	30.54770	29.098	13.9	0.1	-28.1	56.6	72.2	216.1	100.2E	
SEP 1	16 58 55.8	-12 -56 -8.2	30.41996	30.54919	29.399	13.9	0.1	-28.1	282.1	72.2	216.1	96.4E	
SEP 5	16 58 59.1	-12 -57 -54.0	30.48810	30.55068	29.569	13.9	0.1	-28.1	147.5	72.2	216.1	92.6E	
SEP 9	16 59 4.5	-12 -59 -42.9	30.55647	30.55217	29.598	13.9	0.1	-28.1	13.0	72.1	216.1	88.8E	
SEP 13	16 59 12.0	-13 -1 -34.3	30.62475	30.55366	29.484	13.9	0.1	-28.1	238.5	72.1	216.2	85.0E	
SEP 17	16 59 21.7	-13 -3 -28.3	30.69260	30.55515	29.239	13.9	0.1	-28.1	103.9	72.1	216.2	81.2E	
SEP 21	16 59 33.4	-13 -5 -24.2	30.75975	30.55665	28.871	13.9	0.1	-28.2	329.4	72.0	216.2	77.4E	
SEP 25	16 59 47.1	-13 -7 -21.5	30.82591	30.55814	28.382	13.9	0.1	-28.2	194.9	72.0	216.2	73.6E	
SEP 29	17 0 2.8	-13 -9 -19.8	30.89079	30.55964	27.771	13.9	0.1	-28.3	60.4	72.0	216.3	69.8E	
OCT 3	17 0 20.6	-13 -11 -19.1	30.95412	30.56114	27.035	13.9	0.1	-28.3	285.9	71.9	216.3	66.0E	
OCT 7	17 0 40.2	-13 -13 -18.7	31.01561	30.56264	26.168	13.9	0.1	-28.4	151.4	71.9	216.3	62.2E	
OCT 11	17 1 1.6	-13 -15 -18.0	31.07493	30.56414	25.174	13.9	0.1	-28.5	16.9	71.8	216.3	58.4E	
OCT 15	17 1 24.9	-13 -17 -16.9	31.13184	30.56564	24.069	13.9	0.1	-28.5	242.4	71.7	216.4	54.6E	
OCT 19	17 1 49.8	-13 -19 -14.8	31.18607	30.56714	22.863	13.9	0.1	-28.6	107.9	71.7	216.4	50.9E	
OCT 23	17 2 16.2	-13 -21 -11.2	31.23740	30.56865	21.562	13.9	0.1	-28.7	333.4	71.6	216.4	47.1E	
OCT 27	17 2 44.2	-13 -23 -5.8	31.28562	30.57015	20.167	13.9	0.1	-28.8	198.9	71.6	216.4	43.3E	
OCT 31	17 3 13.7	-13 -24 -58.5	31.33051	30.57166	18.679	13.9	0.1	-28.9	64.4	71.5	216.5	39.6E	
NOV 4	17 3 44.4	-13 -26 -48.5	31.37186	30.57316	17.095	13.9	0.1	-29.0	289.9	71.4	216.5	35.8E	
NOV 8	17 4 16.3	-13 -28 -35.5	31.40944	30.57467	15.425	13.9	0.1	-29.1	155.4	71.4	216.5	32.1E	
NOV 12	17 4 49.3	-13 -30 -19.5	31.44308	30.57618	13.688	13.9	0.1	-29.3	20.9	71.3	216.6	28.4E	
NOV 16	17 5 23.3	-13 -31 -59.7	31.47264	30.57769	11.896	13.9	0.1	-29.4	246.5	71.2	216.6	24.8E	
NOV 20	17 5 58.0	-13 -33 -35.8	31.49801	30.57920	10.057	13.9	0.1	-29.5	112.0	71.1	216.6	21.3E	
NOV 24	17 6 33.5	-13 -35 -7.7	31.51908	30.58072	8.174	13.9	0.1	-29.6	337.5	71.1	216.6	17.8E	
NOV 28	17 7 9.6	-13 -36 -35.4	31.53575	30.58223	6.249	13.9	0.1	-29.8	203.0	71.0	216.7	14.7E	
DEC 2	17 7 46.1	-13 -37 -58.1	31.54793	30.58375	4.284	13.9	0.						

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	17 12 37.8	-13-45-44.1	31.48096	30.59592	-11.348	13.9	0.1	-31.0	72.8	70.3	216.9	25.4W	
JAN 7	17 13 12.1	-13-46-16.3	31.45264	30.59744	-13.160	13.9	0.1	-31.1	298.3	70.3	216.9	29.1W	
JAN 11	17 13 45.5	-13-46-42.3	31.42022	30.59897	-14.901	13.9	0.1	-31.2	163.8	70.2	216.9	32.9W	
JAN 15	17 14 17.8	-13-47-2.2	31.38386	30.60050	-16.564	13.9	0.1	-31.3	29.3	70.1	217.0	36.7W	
JAN 19	17 14 49.0	-13-47-16.5	31.34375	30.60203	-18.146	13.9	0.1	-31.4	254.9	70.1	217.0	40.5W	
JAN 23	17 15 18.8	-13-47-25.1	31.30008	30.60356	-19.648	13.9	0.1	-31.6	120.4	70.0	217.0	44.3W	
JAN 27	17 15 47.3	-13-47-27.8	31.25304	30.60509	-21.066	13.9	0.1	-31.7	345.9	70.0	217.0	48.2W	
JAN 31	17 16 14.3	-13-47-25.0	31.20283	30.60663	-22.386	13.9	0.1	-31.8	211.4	69.9	217.1	52.0W	
FEB 4	17 16 39.6	-13-47-17.1	31.14970	30.60816	-23.592	13.9	0.1	-31.9	76.9	69.9	217.1	55.9W	
FEB 8	17 17 3.2	-13-47-3.8	31.09392	30.60970	-24.674	13.9	0.1	-32.0	302.4	69.8	217.1	59.8W	
FEB 12	17 17 25.0	-13-46-45.4	31.03579	30.61123	-25.632	13.9	0.1	-32.0	167.9	69.8	217.1	63.7W	
FEB 16	17 17 44.9	-13-46-22.7	30.97559	30.61277	-26.464	13.9	0.1	-32.1	33.4	69.8	217.2	67.6W	
FEB 20	17 18 2.8	-13-45-55.6	30.91361	30.61431	-27.177	13.9	0.1	-32.2	258.9	69.7	217.2	71.5W	
FEB 24	17 18 18.8	-13-45-24.1	30.85012	30.61585	-27.767	13.9	0.1	-32.3	124.4	69.7	217.2	75.4W	
FEB 28	17 18 32.7	-13-44-48.9	30.78542	30.61739	-28.224	13.9	0.1	-32.3	349.8	69.7	217.2	79.3W	
MAR 4	17 18 44.5	-13-44-10.3	30.71983	30.61894	-28.537	13.9	0.1	-32.4	215.3	69.7	217.3	83.2W	
MAR 8	17 18 54.0	-13-43-28.3	30.65368	30.62048	-28.702	13.9	0.1	-32.4	80.8	69.7	217.3	87.2W	
MAR 12	17 19 1.5	-13-42-43.4	30.58732	30.62202	-28.722	13.9	0.1	-32.4	306.3	69.7	217.3	91.1W	
MAR 16	17 19 6.7	-13-41-56.4	30.52108	30.62357	-28.604	13.9	0.1	-32.5	171.7	69.6	217.3	95.0W	
MAR 20	17 19 9.8	-13-41-7.2	30.45526	30.62512	-28.355	13.9	0.1	-32.5	37.2	69.7	217.4	98.9W	
MAR 24	17 19 10.6	-13-40-16.2	30.39017	30.62666	-27.977	13.9	0.1	-32.5	262.7	69.7	217.4	102.8W	
MAR 28	17 19 9.4	-13-39-24.0	30.32610	30.62821	-27.463	13.9	0.1	-32.5	128.1	69.7	217.4	106.7W	
APR 1	17 19 6.0	-13-38-30.9	30.26339	30.62976	-26.807	13.9	0.1	-32.5	353.5	69.7	217.4	110.6W	
APR 5	17 19 0.4	-13-37-37.0	30.20235	30.63132	-26.013	13.9	0.1	-32.5	219.0	69.7	217.5	114.5W	
APR 9	17 18 52.8	-13-36-43.1	30.14329	30.63287	-25.088	13.9	0.1	-32.4	84.4	69.7	217.5	118.4W	
APR 13	17 18 43.3	-13-35-49.7	30.08652	30.63442	-24.043	13.9	0.1	-32.4	309.9	69.8	217.5	122.3W	
APR 17	17 18 31.8	-13-34-56.9	30.03229	30.63598	-22.891	13.9	0.1	-32.4	175.3	69.8	217.5	126.2W	
APR 21	17 18 18.6	-13-34-4.9	29.98083	30.63753	-21.636	13.9	0.1	-32.3	40.7	69.8	217.6	130.1W	
APR 25	17 18 3.6	-13-33-14.7	29.93240	30.63909	-20.275	13.9	0.1	-32.3	266.2	69.9	217.6	133.9W	
APR 29	17 17 46.9	-13-32-26.2	29.88723	30.64065	-18.806	13.9	0.1	-32.2	131.6	69.9	217.6	137.8W	
MAY 3	17 17 28.7	-13-31-39.6	29.84558	30.64221	-17.239	13.8	0.1	-32.1	357.0	69.9	217.6	141.6W	
MAY 7	17 17 9.1	-13-30-55.7	29.80765	30.64377	-15.585	13.8	0.1	-32.1	222.4	70.0	217.7	145.4W	
MAY 11	17 16 48.3	-13-30-15.0	29.77362	30.64533	-13.859	13.8	0.1	-32.0	87.8	70.0	217.7	149.2W	
MAY 15	17 16 26.2	-13-29-37.2	29.74365	30.64689	-12.077	13.8	0.1	-31.9	313.2	70.1	217.7	152.9W	
MAY 19	17 16 3.2	-13-29-3.0	29.71785	30.64846	-10.244	13.8	0.1	-31.8	178.6	70.1	217.7	156.5W	
MAY 23	17 15 39.3	-13-28-32.8	29.69636	30.65002	-8.357	13.8	0.1	-31.7	44.1	70.2	217.8	160.1W	
MAY 27	17 15 14.6	-13-28-6.6	29.67927	30.65159	-6.421	13.8	0.1	-31.7	269.5	70.2	217.8	163.4W	
MAY 31	17 14 49.4	-13-27-44.6	29.66571	30.65315	-4.447	13.8	0.1	-31.6	134.9	70.3	217.8	166.4W	
JUN 4	17 14 23.8	-13-27-27.3	29.65874	30.65472	-2.450	13.8	0.1	-31.5	0.3	70.3	217.9	168.9W	
JUN 8	17 13 57.9	-13-27-15.1	29.65539	30.65629	-0.446	13.8	0.1	-31.4	225.7	70.4	217.9	170.3W	
JUN 12	17 13 31.9	-13-27-7.7	29.65667	30.65786	1.550	13.8	0.1	-31.3	91.1	70.4	217.9	170.2E	
JUN 16	17 13 6.0	-13-27-5.5	29.66254	30.65943	3.534	13.8	0.1	-31.2	316.5	70.5	217.9	168.7E	
JUN 20	17 12 40.2	-13-27-8.8	29.67298	30.66100	5.507	13.8	0.1	-31.1	181.9	70.5	218.0	166.3E	
JUN 24	17 12 14.8	-13-27-17.4	29.68796	30.66258	7.463	13.8	0.1	-31.0	47.3	70.5	218.0	163.2E	
JUN 28	17 11 50.0	-13-27-31.4	29.70743	30.66415	9.392	13.8	0.1	-30.9	272.7	70.6	218.0	159.9E	
JUL 2	17 11 25.8	-13-27-51.2	29.73132	30.66573	11.277	13.8	0.1	-30.8	138.1	70.6	218.0	156.4E	
JUL 6	17 11 2.4	-13-28-16.9	29.75949	30.66731	13.104	13.8	0.1	-30.7	3.5	70.7	218.1	152.8E	
JUL 10	17 10 39.9	-13-28-47.9	29.79180	30.66888	14.860	13.8	0.1	-30.6	228.9	70.7	218.1	149.1E	
JUL 14	17 10 18.6	-13-29-24.8	29.82809	30.67046	16.544	13.8	0.1	-30.5	94.4	70.7	218.1	145.4E	
JUL 18	17 9 58.4	-13-30-7.4	29.86818	30.67204	18.159	13.8	0.1	-30.4	319.8	70.8	218.1	141.7E	
JUL 22	17 9 39.6	-13-30-55.3	29.91193	30.67363	19.701	13.9	0.1	-30.4	185.2	70.8	218.2	137.9E	
JUL 26	17 9 22.2	-13-31-48.5	29.95914	30.67521	21.158	13.9	0.1	-30.3	50.6	70.8	218.2	134.2E	
JUL 30	17 9 6.4	-13-32-47.5	30.00961	30.67679	22.517	13.9	0.1	-30.2	276.0	70.8	218.2	130.4E	
AUG 3	17 8 52.2	-13-33-51.6	30.06309	30.67838	23.767	13.9	0.1	-30.2	141.5	70.8	218.2	126.6E	
AUG 7	17 8 39.8	-13-35-0.5	30.11932	30.67996	24.899	13.9	0.1	-30.1	6.9	70.9	218.3	122.8E	
AUG 11	17 8 29.2	-13-36-14.5	30.17804	30.68155	25.917	13.9	0.1	-30.1	232.3	70.9	218.3	119.0E	
AUG 15	17 8 20.5	-13-37-33.1	30.23898	30.68314	26.826	13.9	0.1	-30.0	97.8	70.9	218.3	115.2E	
AUG 19	17 8 13.7	-13-38-55.8	30.30190	30.68473	27.624	13.9	0.1	-30.0	323.2	70.9	218.3	111.3E	
AUG 23	17 8 8.9	-13-40-22.7	30.36652	30.68632	28.301	13.9	0.1	-30.0	188.7	70.9	218.4	107.5E	
AUG 27	17 8 6.2	-13-41-53.7	30.43256	30.68791	28.850	13.9	0.1	-29.9	54.1	70.8	218.4	103.7E	
AUG 31	17 8 5.5	-13-43-28.2	30.49971	30.68950	29.260	13.9	0.1	-29.9	279.6	70.8	218.4	99.9E	
SEP 4	17 8 7.0	-13-45-5.7	30.56765	30.69110	29.531	13.9	0.1	-29.9	145.0	70.8	218.4	96.1E	
SEP 8	17 8 10.7	-13-46-46.4	30.63605	30.69269	29.670	13.9	0.1	-29.9	10.5	70.8	218.5	92.3E	
SEP 12	17 8 16.3	-13-48-29.7	30.70464	30.69429	29.685	13.9	0.1	-29.9	236.0	70.8	218.5	88.5E	
SEP 16	17 8 24.1	-13-50-14.9	30.77311	30.69588	29.576	13.9	0.1	-30.0	101.4	70.7	218.5	84.7E	
SEP 20	17 8 34.1	-13-52-2.0	30.84119	30.69748	29.338	13.9	0.1	-30.0	326.9	70.7	218.5	80.9E	
SEP 24	17 8 46.1	-13-53-50.9	30.90856	30.69908	28.966	14.0	0.1	-30.0	192.4	70.7	218.6	77.0E	
SEP 28	17 9 0.1	-13-55-40.8	30.97492	30.70068	28.455	14.0	0.1	-30.1	57.9	70.6	218.6	73.2E	
OCT 2	17 9 16.2	-13-57-31.2	31.03993	30.70228	27.809	14.0	0.1	-30.1	283.4	70.6	218.6	69.4E	
OCT 6	17 9 34.2	-13-59-22.2	31.10331	30.70389	27.040	14.0	0.1	-30.2	148.9	70.5	218.6	65.6E	
OCT 10	17 9 54.1	-14-1-13.1	31.16479	30.70549	26.160	14.0	0.1	-30.2	14.3	70.5	218.7	61.8E	
OCT 14	17 10 15.8	-14-3-3.3	31.22410	30.70709	25.170	14.0	0.1	-30.3	239.8	70.4	218.7	58.0E	
OCT 18	17 10 39.3	-14-4-52.9	31.28100	30.70870	24.069	14.0	0.1	-30.4	105.3	70.4	218.7	54.2E	
OCT 22	17 11 4.4	-14-6-41.4	31.33522	30.71031	22.855	14.0	0.1	-30.5	330.9	70.3	218.7	50.4E	
OCT 26	17 11 31.2	-14-8-28.2	31.38652	30.71191	21.529	14.0	0.1	-30.6	196.4	70.2	218.8	46.6E	
OCT 30	17 11 59.5	-14-10-13.0	31.43462	30.71352	20.098	14.0	0.1	-30.7	61.9	70.2	218.8	42.8E	
NOV 3	17 12 29.1	-14-11-55.8	31.47931	30.71513	18.580	14.0	0.1	-30.8	287.4	70.1	218.8	39.0E	
NOV 7	17 13 0.0	-14-13-35.7	31.52041	30.71674	16.987	14.0	0.1	-30.9	152.9	70.0	218.8	35.3E	
NOV 11	17 13 32.1	-14-15-12.5	31.55775	30.71835	15.323	14.0	0.1	-31.0	18.4	70.0	218.9	31.6E	
NOV 15	17 14 5.3	-14-16-46.1	31.59117	30.71997	13.591	14.0	0.1	-31.1	243.9	69.9	218.9	27.9E	
NOV 19	17 14 39.4	-14-18-16.4	31.62050	30.72158	11.792	14.0	0.1	-31.2	109.5	69.8	218.9	24.2E	
NOV 23	17 15 14.3	-14-19-42.5	31.64561	30.72320	9.928	14.0	0.1	-31.4	335.0	69.7	218.9	20.6E	
NOV 27	17 15 49.9	-14-21-4.5	31.66634	30.72481	8.013	14.0	0.1	-31.5	200.5	69.6	219.0	17.2E	
DEC 1	17 16 26.1	-14-22-22.4	31.										

Date (O DT)	RA (h m s)	Mean (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	Ls	Solar Elong
JAN 2	17 21 18.9	-14-29-44.0	31.64851	30.73941	-9.678	14.0	0.1	-32.7	70.3	68.9	219.2	22.1W	
JAN 6	17 21 53.9	-14-30-14.9	31.62401	30.74104	-11.525	14.0	0.1	-32.8	295.8	68.8	219.2	25.7W	
JAN 10	17 22 28.1	-14-30-40.6	31.59531	30.74266	-13.319	14.0	0.1	-32.9	161.3	68.8	219.2	29.4W	
JAN 14	17 23 1.2	-14-31-0.9	31.56252	30.74429	-15.055	14.0	0.1	-33.1	26.8	68.7	219.3	33.2W	
JAN 18	17 23 33.4	-14-31-15.5	31.52580	30.74592	-16.728	14.0	0.1	-33.2	252.4	68.6	219.3	37.0W	
JAN 22	17 24 4.4	-14-31-25.1	31.48530	30.74755	-18.324	14.0	0.1	-33.3	117.9	68.6	219.3	40.8W	
JAN 26	17 24 34.0	-14-31-29.4	31.44121	30.74919	-19.824	14.0	0.1	-33.4	343.4	68.5	219.3	44.7W	
JAN 30	17 25 2.2	-14-31-28.5	31.39379	30.75082	-21.218	14.0	0.1	-33.5	208.9	68.5	219.4	48.6W	
FEB 3	17 25 28.8	-14-31-22.6	31.34326	30.75246	-22.506	14.0	0.1	-33.6	74.4	68.4	219.4	52.4W	
FEB 7	17 25 53.8	-14-31-12.4	31.28989	30.75409	-23.686	14.0	0.1	-33.7	299.9	68.4	219.4	56.3W	
FEB 11	17 26 17.1	-14-30-57.5	31.23391	30.75573	-24.760	14.0	0.1	-33.8	165.4	68.3	219.4	60.2W	
FEB 15	17 26 38.6	-14-30-38.2	31.17557	30.75737	-25.722	14.0	0.1	-33.9	30.9	68.3	219.5	64.1W	
FEB 19	17 26 58.2	-14-30-15.1	31.11516	30.75901	-26.561	14.0	0.1	-33.9	256.4	68.2	219.5	68.0W	
FEB 23	17 27 15.8	-14-29-48.2	31.05296	30.76065	-27.262	14.0	0.1	-34.0	121.9	68.2	219.5	71.9W	
FEB 27	17 27 31.4	-14-29-17.5	30.98931	30.76229	-27.822	14.0	0.1	-34.1	347.4	68.2	219.5	75.8W	
MAR 2	17 27 44.9	-14-28-43.8	30.92452	30.76393	-28.242	14.0	0.1	-34.1	212.9	68.2	219.6	79.8W	
MAR 6	17 27 56.3	-14-28-7.4	30.85892	30.76557	-28.528	14.0	0.1	-34.2	78.4	68.1	219.6	83.7W	
MAR 10	17 28 5.6	-14-27-28.4	30.79281	30.76722	-28.684	13.9	0.1	-34.2	303.9	68.1	219.6	87.6W	
MAR 14	17 28 12.7	-14-26-46.9	30.72649	30.76886	-28.709	13.9	0.1	-34.2	169.3	68.1	219.7	91.5W	
MAR 18	17 28 17.6	-14-26-3.9	30.66027	30.77051	-28.594	13.9	0.1	-34.3	34.8	68.1	219.7	95.4W	
MAR 22	17 28 20.3	-14-25-19.2	30.59449	30.77216	-28.329	13.9	0.1	-34.3	260.3	68.1	219.7	99.3W	
MAR 26	17 28 20.8	-14-24-33.1	30.52949	30.77380	-27.919	13.9	0.1	-34.3	125.7	68.1	219.7	103.3W	
MAR 30	17 28 19.2	-14-23-46.4	30.46560	30.77545	-27.370	13.9	0.1	-34.3	351.2	68.1	219.8	107.2W	
APR 3	17 28 15.4	-14-22-59.4	30.40313	30.77710	-26.692	13.9	0.1	-34.3	216.6	68.1	219.8	111.1W	
APR 7	17 28 9.6	-14-22-12.2	30.34236	30.77876	-25.893	13.9	0.1	-34.3	82.1	68.2	219.8	115.0W	
APR 11	17 28 1.7	-14-21-25.1	30.28358	30.78041	-24.976	13.9	0.1	-34.2	307.5	68.2	219.8	118.9W	
APR 15	17 27 51.9	-14-20-39.0	30.22706	30.78206	-23.934	13.9	0.1	-34.2	172.9	68.2	219.9	122.8W	
APR 19	17 27 40.2	-14-19-53.6	30.17309	30.78372	-22.767	13.9	0.1	-34.2	38.4	68.3	219.9	126.7W	
APR 23	17 27 26.6	-14-19-9.4	30.12195	30.78537	-21.482	13.9	0.1	-34.1	263.8	68.3	219.9	130.6W	
APR 27	17 27 11.4	-14-18-27.0	30.07391	30.78703	-20.091	13.9	0.1	-34.1	129.2	68.3	219.9	134.4W	
MAY 1	17 26 54.5	-14-17-46.8	30.02919	30.78869	-18.607	13.9	0.1	-34.0	354.6	68.4	220.0	138.3W	
MAY 5	17 26 36.1	-14-17-8.7	29.98800	30.79035	-17.043	13.9	0.1	-33.9	220.1	68.4	220.0	142.1W	
MAY 9	17 26 16.4	-14-16-33.3	29.95050	30.79201	-15.402	13.9	0.1	-33.9	85.5	68.5	220.0	145.9W	
MAY 13	17 25 55.4	-14-16-1.0	29.91689	30.79367	-13.682	13.9	0.1	-33.8	310.9	68.5	220.0	149.7W	
MAY 17	17 25 33.2	-14-15-31.6	29.88734	30.79533	-11.886	13.8	0.1	-33.7	176.3	68.6	220.1	153.4W	
MAY 21	17 25 10.0	-14-15-5.6	29.86201	30.79699	-10.026	13.8	0.1	-33.6	41.7	68.6	220.1	157.1W	
MAY 25	17 24 46.0	-14-14-43.6	29.84105	30.79866	-8.117	13.8	0.1	-33.5	267.1	68.7	220.1	160.7W	
MAY 29	17 24 21.3	-14-14-25.7	29.82453	30.80032	-6.174	13.8	0.1	-33.5	132.5	68.7	220.1	164.0W	
JUN 2	17 23 56.0	-14-14-11.6	29.81253	30.80199	-4.211	13.8	0.1	-33.4	357.9	68.8	220.2	167.1W	
JUN 6	17 23 30.4	-14-14-2.0	29.80508	30.80365	-2.232	13.8	0.1	-33.3	223.3	68.8	220.2	169.6W	
JUN 10	17 23 4.5	-14-13-57.1	29.80222	30.80532	-0.235	13.8	0.1	-33.2	88.7	68.9	220.2	171.0W	
JUN 14	17 22 38.5	-14-13-56.6	29.80400	30.80699	1.773	13.8	0.1	-33.1	314.1	68.9	220.2	170.8E	
JUN 18	17 22 12.5	-14-14-0.9	29.81041	30.80866	3.780	13.8	0.1	-33.0	179.5	69.0	220.3	169.1E	
JUN 22	17 21 46.8	-14-14-10.4	29.82144	30.81033	5.768	13.8	0.1	-32.9	44.9	69.0	220.3	166.4E	
JUN 26	17 21 21.5	-14-14-24.9	29.83703	30.81200	7.723	13.8	0.1	-32.8	270.4	69.1	220.3	163.3E	
JUN 30	17 20 56.7	-14-14-44.3	29.85708	30.81368	9.634	13.8	0.1	-32.7	135.8	69.1	220.3	159.9E	
JUL 4	17 20 32.7	-14-15-8.9	29.88150	30.81535	11.497	13.8	0.1	-32.6	1.2	69.2	220.4	156.3E	
JUL 8	17 20 9.4	-14-15-38.8	29.91016	30.81702	13.316	13.8	0.1	-32.5	226.6	69.2	220.4	152.7E	
JUL 12	17 19 47.1	-14-16-13.4	29.94298	30.81870	15.083	13.9	0.1	-32.4	92.0	69.2	220.4	149.0E	
JUL 16	17 19 25.9	-14-16-53.3	29.97980	30.82038	16.786	13.9	0.1	-32.3	317.4	69.3	220.4	145.3E	
JUL 20	17 19 5.9	-14-17-38.4	30.02047	30.82205	18.409	13.9	0.1	-32.2	182.8	69.3	220.5	141.5E	
JUL 24	17 18 47.3	-14-18-28.4	30.06478	30.82373	19.941	13.9	0.1	-32.2	48.2	69.3	220.5	137.7E	
JUL 28	17 18 30.1	-14-19-23.0	30.11252	30.82541	21.374	13.9	0.1	-32.1	273.7	69.3	220.5	133.9E	
AUG 1	17 18 14.6	-14-20-22.6	30.16346	30.82709	22.708	13.9	0.1	-32.0	139.1	69.4	220.5	130.1E	
AUG 5	17 18 0.6	-14-21-26.8	30.21736	30.82878	23.949	13.9	0.1	-32.0	4.5	69.4	220.6	126.3E	
AUG 9	17 17 48.4	-14-22-35.0	30.27403	30.83046	25.091	13.9	0.1	-31.9	229.9	69.4	220.6	122.5E	
AUG 13	17 17 38.1	-14-23-47.6	30.33320	30.83214	26.122	13.9	0.1	-31.9	95.4	69.4	220.6	118.7E	
AUG 17	17 17 29.6	-14-25-4.5	30.39462	30.83383	27.032	13.9	0.1	-31.8	320.8	69.4	220.6	114.9E	
AUG 21	17 17 23.1	-14-26-24.9	30.45800	30.83551	27.812	13.9	0.1	-31.8	186.3	69.4	220.7	111.0E	
AUG 25	17 17 18.6	-14-27-48.8	30.52302	30.83720	28.459	13.9	0.1	-31.8	51.7	69.4	220.7	107.2E	
AUG 29	17 17 16.2	-14-29-16.1	30.58939	30.83889	28.979	13.9	0.1	-31.8	277.2	69.4	220.7	103.4E	
SEP 2	17 17 15.9	-14-30-46.3	30.65682	30.84057	29.380	13.9	0.1	-31.8	142.6	69.4	220.7	99.6E	
SEP 6	17 17 17.6	-14-32-19.0	30.72504	30.84226	29.657	13.9	0.1	-31.8	8.1	69.4	220.8	95.8E	
SEP 10	17 17 21.5	-14-33-54.2	30.79375	30.84396	29.804	14.0	0.1	-31.8	233.5	69.3	220.8	91.9E	
SEP 14	17 17 27.5	-14-35-31.7	30.86264	30.84565	29.812	14.0	0.1	-31.8	99.0	69.3	220.8	88.1E	
SEP 18	17 17 35.6	-14-37-10.6	30.93138	30.84734	29.679	14.0	0.1	-31.8	324.5	69.3	220.8	84.3E	
SEP 22	17 17 45.9	-14-38-50.9	30.99966	30.84903	29.405	14.0	0.1	-31.8	189.9	69.2	220.9	80.5E	
SEP 26	17 17 58.2	-14-40-32.5	31.06715	30.85073	29.003	14.0	0.1	-31.9	55.4	69.2	220.9	76.6E	
SEP 30	17 18 12.5	-14-42-14.5	31.13358	30.85242	28.482	14.0	0.1	-31.9	280.9	69.2	220.9	72.8E	
OCT 4	17 18 28.9	-14-43-56.8	31.19866	30.85412	27.840	14.0	0.1	-32.0	146.4	69.1	220.9	69.0E	
OCT 8	17 18 47.2	-14-45-39.2	31.26212	30.85582	27.075	14.0	0.1	-32.0	11.9	69.1	221.0	65.2E	
OCT 12	17 19 7.4	-14-47-21.4	31.32366	30.85752	26.182	14.0	0.1	-32.1	237.4	69.0	221.0	61.3E	
OCT 16	17 19 29.3	-14-49-2.6	31.38299	30.85922	25.163	14.0	0.1	-32.1	102.9	68.9	221.0	57.5E	
OCT 20	17 19 53.1	-14-50-42.7	31.43983	30.86092	24.024	14.0	0.1	-32.2	328.4	68.9	221.0	53.7E	
OCT 24	17 20 18.6	-14-52-21.7	31.49392	30.86262	22.783	14.0	0.1	-32.3	193.9	68.8	221.1	49.9E	
OCT 28	17 20 45.5	-14-53-58.5	31.54503	30.86432	21.448	14.0	0.1	-32.4	59.4	68.7	221.1	46.1E	
NOV 1	17 21 14.0	-14-55-33.3	31.59295	30.86603	20.023	14.0	0.1	-32.5	284.9	68.7	221.1	42.3E	
NOV 5	17 21 43.9	-14-57-5.8	31.63747	30.86773	18.506	14.0	0.1	-32.6	150.4	68.6	221.1	38.5E	
NOV 9	17 22 15.0	-14-58-35.7	31.67839	30.86944	16.900	14.0	0.1	-32.7	15.9	68.5	221.2	34.7E	
NOV 13	17 22 47.2	-15 0-2.3	31.71550	30.87114	15.207	14.0	0.1	-32.8	241.5	68.4	221.2	31.0E	
NOV 17	17 23 20.6	-15 -1-25.8	31.74860	30.87285	13.440	14.0	0.1	-32.9	107.0	68.4	221.2	27.2E	
NOV 21	17 23 54.8	-15 -2-45.8	31.77756	30.87456	11.619	14.0	0.1	-33.1	332.5	68.3	221.2	23.6E	
NOV 25	17 24 29.9	-15 -4-1.7	31.80226	30.87627	9.754	14.0	0.1	-33.2	198.0	68.2	221.3	19.9E	
NOV 29	17 25												

Date (0 DT)	RA [Mean] (h m s)	Dec (d ° ')	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 4	17 30 34.2	-15-12-34.7	31.80078	30.89342	-9.863	14.0	0.1	-34.5	293.4	67.3	221.5	22.3W
JAN 8	17 31 9.1	-15-12-58.8	31.77584	30.89514	-11.726	14.0	0.1	-34.6	158.9	67.3	221.5	26.0W
JAN 12	17 31 43.1	-15-13-18.2	31.74665	30.89687	-13.534	14.0	0.1	-34.7	24.4	67.2	221.6	29.8W
JAN 16	17 32 16.1	-15-13-32.7	31.71337	30.89859	-15.268	14.0	0.1	-34.9	249.9	67.1	221.6	33.6W
JAN 20	17 32 48.0	-15-13-42.0	31.67618	30.90031	-16.918	14.0	0.1	-35.0	115.5	67.0	221.6	37.4W
JAN 24	17 33 18.7	-15-13-46.8	31.63527	30.90204	-18.483	14.0	0.1	-35.1	341.0	67.0	221.6	41.3W
JAN 28	17 33 48.0	-15-13-47.1	31.59085	30.90376	-19.963	14.0	0.1	-35.2	206.5	66.9	221.7	45.1W
FEB 1	17 34 15.9	-15-13-42.9	31.54311	30.90549	-21.353	14.0	0.1	-35.3	72.0	66.8	221.7	49.0W
FEB 5	17 34 42.3	-15-13-34.3	31.49226	30.90722	-22.648	14.0	0.1	-35.4	297.5	66.8	221.7	52.9W
FEB 9	17 35 7.0	-15-13-21.8	31.43855	30.90894	-23.833	14.0	0.1	-35.5	163.1	66.7	221.7	56.8W
FEB 13	17 35 30.0	-15-13 -5.4	31.38225	30.91067	-24.893	14.0	0.1	-35.6	28.6	66.7	221.8	60.7W
FEB 17	17 35 51.1	-15-12-45.1	31.32364	30.91240	-25.823	14.0	0.1	-35.7	254.1	66.6	221.8	64.6W
FEB 21	17 36 10.3	-15-12-21.7	31.26303	30.91413	-26.626	14.0	0.1	-35.7	119.6	66.6	221.8	68.5W
FEB 25	17 36 27.6	-15-11-55.3	31.20072	30.91587	-27.303	14.0	0.1	-35.8	345.1	66.6	221.8	72.4W
MAR 1	17 36 42.8	-15-11-25.8	31.13698	30.91760	-27.856	14.0	0.1	-35.9	210.5	66.5	221.9	76.3W
MAR 5	17 36 56.0	-15-10-53.8	31.07211	30.91933	-28.281	14.0	0.1	-35.9	76.0	66.5	221.9	80.2W
MAR 9	17 37 7.1	-15-10-19.7	31.00642	30.92107	-28.567	14.0	0.1	-36.0	301.5	66.5	221.9	84.1W
MAR 13	17 37 15.9	-15 -9-43.6	30.94024	30.92280	-28.703	14.0	0.1	-36.0	167.0	66.5	221.9	88.1W
MAR 17	17 37 22.6	-15 -9 -5.6	30.87391	30.92454	-28.692	14.0	0.1	-36.0	32.5	66.5	222.0	92.0W
MAR 21	17 37 27.2	-15 -8-26.6	30.80778	30.92628	-28.540	14.0	0.1	-36.0	257.9	66.5	222.0	95.9W
MAR 25	17 37 29.5	-15 -7-46.7	30.74215	30.92802	-28.255	14.0	0.1	-36.1	123.4	66.5	222.0	99.8W
MAR 29	17 37 29.7	-15 -7 -5.9	30.67733	30.92976	-27.841	13.9	0.1	-36.1	348.9	66.5	222.0	103.7W
APR 2	17 37 27.7	-15 -6-24.8	30.61361	30.93150	-27.297	13.9	0.1	-36.1	214.3	66.5	222.1	107.7W
APR 6	17 37 23.7	-15 -5-44.0	30.55130	30.93324	-26.618	13.9	0.1	-36.0	79.8	66.5	222.1	111.6W
APR 10	17 37 17.5	-15 -5 -3.2	30.49073	30.93498	-25.799	13.9	0.1	-36.0	305.2	66.5	222.1	115.5W
APR 14	17 37 9.4	-15 -4-22.9	30.43220	30.93672	-24.847	13.9	0.1	-36.0	170.6	66.6	222.1	119.4W
APR 18	17 36 59.3	-15 -3-44.0	30.37602	30.93847	-23.775	13.9	0.1	-36.0	36.1	66.6	222.2	123.3W
APR 22	17 36 47.2	-15 -3 -6.3	30.32244	30.94021	-22.593	13.9	0.1	-35.9	261.5	66.6	222.2	127.2W
APR 26	17 36 33.4	-15 -2-30.0	30.27170	30.94196	-21.310	13.9	0.1	-35.9	126.9	66.7	222.2	131.1W
APR 30	17 36 18.0	-15 -1-55.6	30.22405	30.94371	-19.929	13.9	0.1	-35.8	352.4	66.7	222.2	134.9W
MAY 4	17 36 0.9	-15 -1-23.7	30.17970	30.94545	-18.446	13.9	0.1	-35.8	217.8	66.7	222.3	138.8W
MAY 8	17 35 42.3	-15 0-53.8	30.13889	30.94720	-16.863	13.9	0.1	-35.7	83.2	66.8	222.3	142.6W
MAY 12	17 35 22.4	-15 0-26.6	30.10185	30.94895	-15.192	13.9	0.1	-35.6	308.6	66.8	222.3	146.5W
MAY 16	17 35 1.2	-15 0 -2.6	30.06875	30.95070	-13.448	13.9	0.1	-35.6	174.0	66.9	222.3	150.2W
MAY 20	17 34 38.9	-14-59-41.8	30.03975	30.95246	-11.646	13.9	0.1	-35.5	39.4	66.9	222.4	154.0W
MAY 24	17 34 15.6	-14-59-24.1	30.01497	30.95421	-9.796	13.9	0.1	-35.4	264.8	67.0	222.4	157.7W
MAY 28	17 33 51.6	-14-59-10.2	29.99452	30.95596	-7.902	13.9	0.1	-35.3	130.2	67.0	222.4	161.3W
JUN 1	17 33 26.8	-14-59 -0.2	29.97849	30.95772	-5.962	13.8	0.1	-35.2	355.6	67.1	222.4	164.7W
JUN 5	17 33 1.5	-14-58-53.8	29.96699	30.95947	-3.982	13.8	0.1	-35.1	221.0	67.2	222.5	167.8W
JUN 9	17 32 35.8	-14-58-51.6	29.96010	30.96123	-1.978	13.8	0.1	-35.0	86.4	67.2	222.5	170.3W
JUN 13	17 32 9.9	-14-58-53.9	29.95785	30.96299	0.034	13.8	0.1	-34.9	311.8	67.3	222.5	171.6W
JUN 17	17 31 43.9	-14-59 -0.5	29.96025	30.96475	2.040	13.8	0.1	-34.8	177.2	67.3	222.5	171.3E
JUN 21	17 31 18.0	-14-59-11.2	29.96726	30.96650	4.028	13.8	0.1	-34.7	42.7	67.4	222.6	169.3E
JUN 25	17 30 52.4	-14-59-26.7	29.97884	30.96826	5.998	13.8	0.1	-34.6	268.1	67.4	222.6	166.5E
JUN 29	17 30 27.2	-14-59-46.8	29.99495	30.97003	7.949	13.9	0.1	-34.5	133.5	67.5	222.6	163.3E
JUL 3	17 30 2.5	-15 0-11.2	30.01554	30.97179	9.874	13.9	0.1	-34.4	358.9	67.5	222.6	159.8E
JUL 7	17 29 38.6	-15 0-40.3	30.04053	30.97355	11.757	13.9	0.1	-34.4	224.3	67.6	222.7	156.2E
JUL 11	17 29 15.4	-15 -1-14.2	30.06982	30.97531	13.583	13.9	0.1	-34.3	89.7	67.6	222.7	152.5E
JUL 15	17 28 53.2	-15 -1-52.6	30.10324	30.97708	15.340	13.9	0.1	-34.2	315.1	67.7	222.7	148.8E
JUL 19	17 28 32.2	-15 -2-35.3	30.14062	30.97885	17.018	13.9	0.1	-34.1	180.5	67.7	222.7	145.0E
JUL 23	17 28 12.5	-15 -3-22.7	30.18180	30.98061	18.620	13.9	0.1	-34.0	45.9	67.7	222.8	141.3E
JUL 27	17 27 54.1	-15 4-14.4	30.22659	30.98238	20.147	13.9	0.1	-33.9	271.3	67.8	222.8	137.5E
JUL 31	17 27 37.1	-15 5-10.0	30.27482	30.98415	21.592	13.9	0.1	-33.9	136.7	67.8	222.8	133.7E
AUG 4	17 27 21.7	-15 -6-10.0	30.32628	30.98592	22.940	13.9	0.1	-33.8	2.2	67.8	222.8	129.8E
AUG 8	17 27 8.0	-15 -7-14.0	30.38072	30.98769	24.179	13.9	0.1	-33.8	227.6	67.8	222.9	126.0E
AUG 12	17 26 56.1	-15 -8-21.6	30.43790	30.98946	25.302	13.9	0.1	-33.7	93.0	67.8	222.9	122.2E
AUG 16	17 26 46.0	-15 -9-32.8	30.49753	30.99123	26.304	13.9	0.1	-33.7	318.5	67.8	222.9	118.4E
AUG 20	17 26 37.9	-15-10-47.6	30.55934	30.99300	27.189	13.9	0.1	-33.6	183.9	67.9	222.9	114.5E
AUG 24	17 26 31.6	-15-12 -5.3	30.62307	30.99478	27.962	13.9	0.1	-33.6	49.3	67.9	223.0	110.7E
AUG 28	17 26 27.4	-15-13-25.8	30.68845	30.99655	28.619	14.0	0.1	-33.6	274.8	67.8	223.0	106.9E
SEP 1	17 26 25.3	-15-14-49.2	30.75520	30.99833	29.146	14.0	0.1	-33.5	140.2	67.8	223.0	103.0E
SEP 5	17 26 25.3	-15-16-15.1	30.82301	31.00010	29.538	14.0	0.1	-33.5	5.7	67.8	223.0	99.2E
SEP 9	17 26 27.3	-15-17-42.8	30.89156	31.00188	29.789	14.0	0.1	-33.5	231.1	67.8	223.1	95.4E
SEP 13	17 26 31.5	-15-19-12.4	30.96054	31.00366	29.901	14.0	0.1	-33.5	96.6	67.8	223.1	91.5E
SEP 17	17 26 37.9	-15-20-43.8	31.02962	31.00544	29.882	14.0	0.1	-33.6	322.1	67.8	223.1	87.7E
SEP 21	17 26 46.3	-15-22-16.1	31.09851	31.00722	29.741	14.0	0.1	-33.6	187.5	67.7	223.1	83.9E
SEP 25	17 26 56.8	-15-23-49.2	31.16693	31.00900	29.474	14.0	0.1	-33.6	53.0	67.7	223.2	80.0E
SEP 29	17 27 9.5	-15-25-23.3	31.23459	31.01078	29.074	14.0	0.1	-33.6	278.5	67.6	223.2	76.2E
OCT 3	17 27 24.1	-15-26-57.6	31.30116	31.01256	28.536	14.0	0.1	-33.7	144.0	67.6	223.2	72.4E
OCT 7	17 27 40.7	-15-28-31.5	31.36634	31.01434	27.863	14.0	0.1	-33.7	9.5	67.5	223.2	68.5E
OCT 11	17 27 59.3	-15-30 -5.3	31.42980	31.01613	27.060	14.0	0.1	-33.8	235.0	67.5	223.3	64.7E
OCT 15	17 28 19.8	-15-31-38.5	31.49128	31.01791	26.141	14.0	0.1	-33.9	100.5	67.4	223.3	60.9E
OCT 19	17 28 42.1	-15-33 10.3	31.55050	31.01970	25.115	14.0	0.1	-33.9	326.0	67.4	223.3	57.0E
OCT 23	17 29 6.1	-15 34-40.8	31.60724	31.02149	23.982	14.0	0.1	-34.0	191.5	67.3	223.3	53.2E
OCT 27	17 29 31.7	-15-36-10.0	31.66123	31.02327	22.739	14.0	0.1	-34.1	57.0	67.2	223.4	49.4E
OCT 31	17 29 58.9	-15-37 37.1	31.71222	31.02506	21.385	14.0	0.1	-34.2	282.5	67.1	223.4	45.6E
NOV 4	17 30 27.6	-15-39 -1.7	31.75996	31.02685	19.927	14.0	0.1	-34.3	148.0	67.1	223.4	41.7E
NOV 8	17 30 57.7	-15-40-24.1	31.80422	31.02864	18.375	14.0	0.1	-34.4	13.5	67.0	223.4	37.9E
NOV 12	17 31 29.0	-15-41-43.7	31.84481	31.03043	16.747	14.0	0.1	-34.5	239.0	66.9	223.5	34.1E
NOV 16	17 32 1.4	-15 42-59.9	31.88156	31.03223	15.053	14.0	0.1	-34.6	104.6	66.8	223.5	30.4E
NOV 20	17 32 34.9	-15 44-13.0	31.91432	31.03402	13.296	14.0	0.1	-34.7	330.1	66.7	223.5	26.6E
NOV 24	17 33 9.2	-15 45-22.8	31.94294	31.03581	11.474	14.0	0.1	-34.8	195.6	66.6	223.5	22.9E
NOV 28	17 33 44.3	-15 46-28.8	31.96729	31.03761	9.593	14.0	0.1	-35.0	61.1	66.6	223.6	19.3E
DEC 2	17 34 20.1	-15 47-30.7	31.98									

Date (0 DT)	RA (h m s)	[Mean] (d ' ")	Dec (d ' ")	Delta (a.u.)	Rho (a.u.)	RV (km/s)	V	Diam (")	S.E. Lat	S.E. Long	P.A. Axis	L _s	Solar Elong
JAN 3	17 39 13.0	-15-53-11.5	31.98204	31.05381	-8.204	14.0	0.1	-36.1	291.0	65.7	223.8	19.0W	
JAN 7	17 39 48.3	-15-53-33.7	31.96089	31.05561	-10.104	14.0	0.1	-36.3	156.5	65.6	223.8	22.6W	
JAN 11	17 40 23.0	-15-53-51.1	31.93541	31.05742	-11.945	14.0	0.1	-36.4	22.0	65.6	223.8	26.4W	
JAN 15	17 40 56.7	-15-54-4.3	31.90575	31.05922	-13.726	14.0	0.1	-36.5	247.6	65.5	223.9	30.2W	
JAN 19	17 41 29.5	-15-54-13.2	31.87204	31.06103	-15.446	14.0	0.1	-36.6	113.1	65.4	223.9	34.0W	
JAN 23	17 42 1.1	-15-54-17.6	31.83444	31.06284	-17.098	14.0	0.1	-36.7	338.6	65.3	223.9	37.8W	
JAN 27	17 42 31.6	-15-54-17.8	31.79311	31.06464	-18.673	14.0	0.1	-36.8	204.1	65.2	223.9	41.7W	
JAN 31	17 43 0.7	-15-54-14.3	31.74823	31.06645	-20.158	14.0	0.1	-37.0	69.7	65.2	224.0	45.6W	
FEB 4	17 43 28.3	-15-54-6.8	31.70006	31.06826	-21.534	14.0	0.1	-37.1	295.2	65.1	224.0	49.5W	
FEB 8	17 43 54.3	-15-53-55.4	31.64883	31.07008	-22.796	14.0	0.1	-37.1	160.7	65.0	224.0	53.3W	
FEB 12	17 44 18.7	-15-53-40.9	31.59482	31.07189	-23.947	14.0	0.1	-37.2	26.2	65.0	224.0	57.2W	
FEB 16	17 44 41.3	-15-53-23.3	31.53827	31.07370	-24.988	14.0	0.1	-37.3	251.7	64.9	224.0	61.2W	
FEB 20	17 45 2.1	-15-53-2.4	31.47946	31.07552	-25.915	14.0	0.1	-37.4	117.2	64.9	224.1	65.1W	
FEB 24	17 45 21.0	-15-52-38.8	31.41863	31.07733	-26.721	14.0	0.1	-37.5	342.7	64.9	224.1	69.0W	
FEB 28	17 45 37.9	-15-52-13.0	31.35610	31.07915	-27.396	14.0	0.1	-37.5	208.2	64.8	224.1	72.9W	
MAR 4	17 45 52.7	-15-51-44.7	31.29217	31.08096	-27.926	14.0	0.1	-37.6	73.7	64.8	224.1	76.8W	
MAR 8	17 46 5.5	-15-51-14.5	31.22718	31.08278	-28.313	14.0	0.1	-37.6	299.2	64.8	224.2	80.7W	
MAR 12	17 46 16.2	-15-50-42.9	31.16146	31.08460	-28.563	14.0	0.1	-37.7	164.7	64.7	224.2	84.6W	
MAR 16	17 46 24.7	-15-50-9.9	31.09531	31.08642	-28.680	14.0	0.1	-37.7	30.2	64.7	224.2	88.6W	
MAR 20	17 46 31.0	-15-49-35.7	31.02904	31.08824	-28.666	14.0	0.1	-37.7	255.7	64.7	224.2	92.5W	
MAR 24	17 46 35.2	-15-49-0.8	30.96296	31.09006	-28.517	14.0	0.1	-37.8	121.1	64.7	224.3	96.4W	
MAR 28	17 46 37.2	-15-48-25.7	30.89739	31.09188	-28.226	14.0	0.1	-37.8	346.6	64.7	224.3	100.3W	
APR 1	17 46 37.0	-15-47-50.1	30.83266	31.09370	-27.787	14.0	0.1	-37.8	212.0	64.7	224.3	104.2W	
APR 5	17 46 34.7	-15-47-14.6	30.76911	31.09553	-27.205	14.0	0.1	-37.8	77.5	64.7	224.3	108.2W	
APR 9	17 46 30.3	-15-46-40.0	30.70706	31.09735	-26.494	14.0	0.1	-37.8	302.9	64.8	224.4	112.1W	
APR 13	17 46 23.9	-15-46-5.9	30.64679	31.09917	-25.661	14.0	0.1	-37.7	168.4	64.8	224.4	116.0W	
APR 17	17 46 15.4	-15-45-32.7	30.58859	31.10100	-24.711	13.9	0.1	-37.7	33.8	64.8	224.4	119.9W	
APR 21	17 46 5.0	-15-45-0.9	30.53271	31.10283	-23.644	13.9	0.1	-37.7	259.3	64.8	224.4	123.8W	
APR 25	17 45 52.8	-15-44-30.8	30.47943	31.10465	-22.458	13.9	0.1	-37.6	124.7	64.9	224.5	127.7W	
APR 29	17 45 38.7	-15-44-2.2	30.42903	31.10648	-21.150	13.9	0.1	-37.6	350.1	64.9	224.5	131.6W	
MAY 3	17 45 23.0	-15-43-35.8	30.38179	31.10831	-19.735	13.9	0.1	-37.5	215.5	65.0	224.5	135.5W	
MAY 7	17 45 5.7	-15-43-11.9	30.33792	31.11014	-18.227	13.9	0.1	-37.5	81.0	65.0	224.5	139.3W	
MAY 11	17 44 46.9	-15-42-50.5	30.29763	31.11197	-16.639	13.9	0.1	-37.4	306.4	65.0	224.6	143.2W	
MAY 15	17 44 26.9	-15-42-31.6	30.26109	31.11380	-14.976	13.9	0.1	-37.3	171.8	65.1	224.6	147.0W	
MAY 19	17 44 5.6	-15-42-15.8	30.22848	31.11564	-13.243	13.9	0.1	-37.3	37.2	65.2	224.6	150.8W	
MAY 23	17 43 43.1	-15-42-3.3	30.19995	31.11747	-11.439	13.9	0.1	-37.2	262.6	65.2	224.6	154.6W	
MAY 27	17 43 19.8	-15-41-53.6	30.17568	31.11930	-9.567	13.9	0.1	-37.1	128.0	65.3	224.7	158.3W	
MAY 31	17 42 55.6	-15-41-47.7	30.15578	31.12114	-7.645	13.9	0.1	-37.0	353.4	65.3	224.7	161.9W	
JUN 4	17 42 30.8	-15-41-45.6	30.14037	31.12297	-5.690	13.9	0.1	-36.9	218.8	65.4	224.7	165.4W	
JUN 8	17 42 5.4	-15-41-47.0	30.12951	31.12481	-3.713	13.9	0.1	-36.8	84.2	65.4	224.7	168.5W	
JUN 12	17 41 39.7	-15-41-52.1	30.12322	31.12665	-1.725	13.9	0.1	-36.7	309.6	65.5	224.8	171.0W	
JUN 16	17 41 13.9	-15-42-1.4	30.12154	31.12849	0.272	13.9	0.1	-36.6	175.0	65.6	224.8	172.3W	
JUN 20	17 40 47.9	-15-42-14.5	30.12448	31.13032	2.279	13.9	0.1	-36.5	40.4	65.6	224.8	171.7E	
JUN 24	17 40 22.1	-15-42-31.5	30.13206	31.13216	4.286	13.9	0.1	-36.5	265.8	65.7	224.8	169.6E	
JUN 28	17 39 56.6	-15-42-52.8	30.14426	31.13400	6.277	13.9	0.1	-36.4	131.2	65.7	224.9	166.6E	
JUL 2	17 39 31.4	-15-43-18.3	30.16103	31.13585	8.234	13.9	0.1	-36.3	356.6	65.8	224.9	163.2E	
JUL 6	17 39 6.8	-15-43-47.7	30.18227	31.13769	10.147	13.9	0.1	-36.2	222.0	65.8	224.9	159.7E	
JUL 10	17 38 43.0	-15-44-21.2	30.20787	31.13953	12.007	13.9	0.1	-36.1	87.4	65.9	224.9	156.0E	
JUL 14	17 38 20.1	-15-44-59.0	30.23770	31.14138	13.815	13.9	0.1	-36.0	312.8	65.9	225.0	152.3E	
JUL 18	17 37 58.1	-15-45-40.5	30.27165	31.14322	15.570	13.9	0.1	-35.9	178.2	66.0	225.0	148.6E	
JUL 22	17 37 37.2	-15-46-25.8	30.30959	31.14507	17.264	13.9	0.1	-35.8	43.6	66.0	225.0	144.8E	
JUL 26	17 37 17.7	-15-47-15.3	30.35135	31.14691	18.880	13.9	0.1	-35.7	269.1	66.1	225.0	141.0E	
JUL 30	17 36 59.4	-15-48-8.6	30.39674	31.14876	20.404	13.9	0.1	-35.7	134.5	66.1	225.1	137.2E	
AUG 3	17 36 42.7	-15-49-5.2	30.44554	31.15061	21.828	13.9	0.1	-35.6	359.9	66.1	225.1	133.3E	
AUG 7	17 36 27.6	-15-50-5.3	30.49751	31.15246	23.148	13.9	0.1	-35.5	225.3	66.1	225.1	129.5E	
AUG 11	17 36 14.2	-15-51-9.0	30.55241	31.15431	24.366	13.9	0.1	-35.5	90.7	66.2	225.1	125.7E	
AUG 15	17 36 2.5	-15-52-15.5	30.61001	31.15616	25.486	14.0	0.1	-35.4	316.2	66.2	225.2	121.8E	
AUG 19	17 35 52.7	-15-53-24.9	30.67008	31.15801	26.499	14.0	0.1	-35.4	181.6	66.2	225.2	118.0E	
AUG 23	17 35 44.8	-15-54-37.4	30.73235	31.15986	27.390	14.0	0.1	-35.4	47.0	66.2	225.2	114.2E	
AUG 27	17 35 38.9	-15-55-52.4	30.79653	31.16171	28.152	14.0	0.1	-35.3	272.5	66.2	225.2	110.3E	
AUG 31	17 35 35.0	-15-57-9.5	30.86232	31.16357	28.780	14.0	0.1	-35.3	137.9	66.2	225.3	106.5E	
SEP 4	17 35 33.2	-15-58-28.7	30.92941	31.16542	29.275	14.0	0.1	-35.3	3.4	66.2	225.3	102.6E	
SEP 8	17 35 33.5	-15-59-49.9	30.99748	31.16728	29.643	14.0	0.1	-35.3	228.8	66.2	225.3	98.8E	
SEP 12	17 35 35.8	-16-1-12.4	31.06627	31.16913	29.889	14.0	0.1	-35.3	94.3	66.1	225.3	94.9E	
SEP 16	17 35 40.4	-16-2-36.2	31.13549	31.17099	30.008	14.0	0.1	-35.3	319.7	66.1	225.4	91.1E	
SEP 20	17 35 47.0	-16-4-1.3	31.20482	31.17285	29.990	14.0	0.1	-35.3	185.2	66.1	225.4	87.3E	
SEP 24	17 35 55.7	-16-5-27.0	31.27394	31.17471	29.829	14.0	0.1	-35.3	50.7	66.0	225.4	83.4E	
SEP 28	17 36 6.6	-16-6-52.9	31.34253	31.17657	29.528	14.0	0.1	-35.4	276.1	66.0	225.4	79.6E	
OCT 2	17 36 19.5	-16-8-19.2	31.41027	31.17843	29.092	14.0	0.1	-35.4	141.6	66.0	225.5	75.7E	
OCT 6	17 36 34.5	-16-9-45.4	31.47685	31.18029	28.530	14.0	0.1	-35.4	7.1	65.9	225.5	71.9E	
OCT 10	17 36 51.4	-16-11-10.9	31.54200	31.18215	27.852	14.0	0.1	-35.5	232.6	65.9	225.5	68.0E	
OCT 14	17 37 10.3	-16-12-35.8	31.60545	31.18401	27.054	14.0	0.1	-35.5	98.1	65.8	225.5	64.2E	
OCT 18	17 37 31.0	-16-13-59.8	31.66691	31.18588	26.130	14.0	0.1	-35.6	323.6	65.7	225.6	60.3E	
OCT 22	17 37 53.5	-16-15-22.4	31.72609	31.18774	25.081	14.0	0.1	-35.7	189.1	65.7	225.6	56.5E	
OCT 26	17 38 17.7	-16-16-43.3	31.78271	31.18961	23.912	14.0	0.1	-35.8	54.6	65.6	225.6	52.7E	
OCT 30	17 38 43.7	-16-18-2.5	31.83649	31.19147	22.633	14.0	0.1	-35.8	280.1	65.5	225.6	48.8E	
NOV 3	17 39 11.1	-16-19-19.7	31.88721	31.19334	21.259	14.0	0.1	-35.9	145.6	65.4	225.7	45.0E	
NOV 7	17 39 40.0	-16-20-34.1	31.93466	31.19521	19.800	14.0	0.1	-36.0	11.1	65.4	225.7	41.2E	
NOV 11	17 40 10.2	-16-21-46.1	31.97863	31.19708	18.255	14.0	0.1	-36.1	236.7	65.3	225.7	37.3E	
NOV 15	17 40 41.6	-16-22-55.5	32.01894	31.19895	16.621	14.0	0.1	-36.2	102.2	65.2	225.7	33.5E	
NOV 19	17 41 14.2	-16-24-1.6	32.05537	31.20082	14.905	14.0	0.1	-36.4	327.7	65.1	225.7	29.7E	
NOV 23	17 41 47.8	-16-25-4.4	32.08775	31.20269	13.115	14.0	0.1	-36.5	193.2	65.0	225.8	25.9E	
NOV 27	17 42 22.3	-16-26-3.9	32.11592	31.20456	11.264	14.0	0.1	-36.6	58.8	64.9	225.8	22.2E	
DEC 1	17												

SECTION 4

PHASES OF THE MOON

1995-2014

Phases of the Moon

Year	New Moon		First Quarter		Full Moon		Last Quarter	
1995	JAN 1	10:57	JAN 8	15:44	JAN 16	20:28	JAN 24	04:56
	JAN 30	22:50	FEB 7	12:55	FEB 15	12:17	FEB 22	13:02
	MAR 1	11:50	MAR 9	10:17	MAR 17	01:27	MAR 23	20:10
	MAR 31	02:11	APR 8	05:40	APR 15	12:10	APR 22	03:20
	APR 29	17:38	MAY 7	21:49	MAY 14	20:49	MAY 21	11:38
	MAY 29	09:28	JUN 6	10:29	JUN 13	04:04	JUN 19	22:05
	JUN 28	00:51	JUL 5	20:03	JUL 12	10:49	JUL 19	11:14
	JUL 27	15:13	AUG 4	03:15	AUG 10	18:16	AUG 18	03:07
	AUG 26	04:31	SEP 2	09:00	SEP 9	03:36	SEP 16	21:11
	SEP 24	16:55	OCT 1	14:33	OCT 8	15:52	OCT 16	16:26
	OCT 24	04:36	OCT 30	21:15	NOV 7	07:22	NOV 15	11:39
	NOV 22	15:43	NOV 29	06:29	DEC 7	01:28	DEC 15	05:29
	DEC 22	02:23	DEC 28	19:09				
1996					JAN 5	20:52	JAN 13	20:43
	JAN 20	12:52	JAN 27	11:17	FEB 4	15:59	FEB 12	08:36
	FEB 18	23:32	FEB 26	05:56	MAR 5	09:24	MAR 12	17:17
	MAR 19	10:47	MAR 27	01:34	APR 4	00:09	APR 10	23:40
	APR 17	22:51	APR 25	20:43	MAY 3	11:50	MAY 10	05:09
	MAY 17	11:49	MAY 25	14:14	JUN 1	20:49	JUN 8	11:11
	JUN 16	01:38	JUN 24	05:23	JUL 1	04:60	JUL 7	18:59
	JUL 15	16:16	JUL 23	17:47	JUL 30	10:37	AUG 6	05:26
	AUG 14	07:35	AUG 22	03:35	AUG 28	17:53	SEP 4	19:04
	SEP 12	23:07	SEP 20	11:22	SEP 27	02:51	OCT 4	12:01
	OCT 12	14:14	OCT 19	18:10	OCT 26	14:11	NOV 3	07:47
	NOV 11	04:16	NOV 18	01:11	NOV 25	04:10	DEC 3	05:04
	DEC 10	16:56	DEC 17	09:34	DEC 24	20:41		
1997							JAN 2	01:46
	JAN 9	04:26	JAN 15	20:05	JAN 23	15:11	JAN 31	19:44
	FEB 7	15:07	FEB 14	08:59	FEB 22	10:27	MAR 2	09:43
	MAR 9	01:16	MAR 16	00:07	MAR 24	04:46	MAR 31	19:44
	APR 7	11:04	APR 14	17:00	APR 22	20:36	APR 30	02:42
	MAY 6	20:49	MAY 14	10:55	MAY 22	09:16	MAY 29	07:54
	JUN 5	07:06	JUN 13	04:51	JUN 20	19:12	JUN 27	12:43
	JUL 4	18:42	JUL 12	21:44	JUL 20	03:23	JUL 26	18:26
	AUG 3	08:16	AUG 11	12:43	AUG 18	10:58	AUG 25	02:21
	SEP 1	23:53	SEP 10	01:33	SEP 16	18:52	SEP 23	13:32
	OCT 1	16:53	OCT 9	12:24	OCT 16	03:47	OCT 23	04:47
	OCT 31	10:02	NOV 7	21:45	NOV 14	14:12	NOV 22	00:01
	NOV 30	02:15	DEC 7	06:11	DEC 14	02:38	DEC 21	21:49
	DEC 29	16:58						
1998			JAN 5	14:20	JAN 12	17:25	JAN 20	19:48
	JAN 28	06:02	FEB 3	22:55	FEB 11	10:24	FEB 19	15:35
	FEB 26	17:28	MAR 5	08:42	MAR 13	04:35	MAR 21	07:43
	MAR 28	03:15	APR 3	20:20	APR 11	22:25	APR 19	19:54
	APR 26	11:43	MAY 3	10:05	MAY 11	14:31	MAY 19	04:33
	MAY 25	19:34	JUN 2	01:45	JUN 10	04:20	JUN 17	10:34
	JUN 24	03:52	JUL 1	18:42	JUL 9	16:03	JUL 16	15:09
	JUL 23	13:45	JUL 31	12:05	AUG 8	02:12	AUG 14	19:46
	AUG 22	02:04	AUG 30	05:07	SEP 6	11:23	SEP 13	01:59
	SEP 20	17:03	SEP 28	21:11	OCT 5	20:13	OCT 12	11:15
	OCT 20	10:11	OCT 28	11:47	NOV 4	05:20	NOV 11	00:34
	NOV 19	04:28	NOV 27	00:23	DEC 3	15:21	DEC 10	18:01
	DEC 18	22:44	DEC 26	10:48				
1999					JAN 2	02:51	JAN 9	14:28
	JAN 17	15:48	JAN 24	19:18	JAN 31	16:08	FEB 8	12:03
	FEB 16	06:41	FEB 23	02:47	MAR 2	07:60	MAR 10	08:43
	MAR 17	18:50	MAR 24	10:21	MAR 31	22:50	APR 9	02:50
	APR 16	04:24	APR 22	19:04	APR 30	14:55	MAY 8	17:25
	MAY 15	12:06	MAY 22	05:34	MAY 30	06:41	JUN 7	04:16
	JUN 13	19:04	JUN 20	18:11	JUN 28	21:39	JUL 6	11:55
	JUL 13	02:25	JUL 20	08:58	JUL 28	11:26	AUG 4	17:28
	AUG 11	11:10	AUG 19	01:45	AUG 26	23:50	SEP 2	22:22
	SEP 9	22:03	SEP 17	20:06	SEP 25	10:53	OCT 2	04:09
	OCT 9	11:35	OCT 17	15:01	OCT 24	21:04	OCT 31	12:11
	NOV 8	03:54	NOV 16	09:05	NOV 23	07:06	NOV 29	23:24
	DEC 7	22:33	DEC 16	00:54	DEC 22	17:33	DEC 29	14:07

Phases of the Moon

Year	New Moon			First Quarter			Full Moon			Last Quarter		
2000	JAN	6	18:15	JAN	14	13:38	JAN	21	04:42	JAN	28	07:57
	FEB	5	13:05	FEB	12	23:25	FEB	19	16:28	FEB	27	03:53
	MAR	6	05:19	MAR	13	07:01	MAR	20	04:45	MAR	28	00:19
	APR	4	18:15	APR	11	13:31	APR	18	17:42	APR	26	19:29
	MAY	4	04:14	MAY	10	19:59	MAY	18	07:35	MAY	26	11:55
	JUN	2	12:16	JUN	9	03:26	JUN	16	22:28	JUN	25	01:03
	JUL	1	19:22	JUL	8	12:50	JUL	16	13:57	JUL	24	11:07
	JUL	31	02:27	AUG	7	01:01	AUG	15	05:15	AUG	22	18:56
	AUG	29	10:21	SEP	5	16:29	SEP	13	19:39	SEP	21	01:34
	SEP	27	19:54	OCT	5	11:03	OCT	13	08:56	OCT	20	08:04
	OCT	27	07:59	NOV	4	07:32	NOV	11	21:17	NOV	18	15:27
	NOV	25	23:13	DEC	4	04:01	DEC	11	09:05	DEC	18	00:42
	DEC	25	17:24									
2001				JAN	2	22:36	JAN	9	20:26	JAN	16	12:34
	JAN	24	13:09	FEB	1	14:04	FEB	8	07:13	FEB	15	03:23
	FEB	23	08:23	MAR	3	02:02	MAR	9	17:24	MAR	16	20:46
	MAR	25	01:24	APR	1	10:46	APR	8	03:23	APR	15	15:33
	APR	23	15:28	APR	30	17:04	MAY	7	13:54	MAY	15	10:14
	MAY	23	02:48	MAY	29	22:07	JUN	6	01:41	JUN	14	03:33
	JUN	21	11:59	JUN	28	03:20	JUL	5	15:05	JUL	13	18:50
	JUL	20	19:46	JUL	27	10:11	AUG	4	05:57	AUG	12	07:57
	AUG	19	02:56	AUG	25	20:60	SEP	2	21:45	SEP	10	19:02
	SEP	17	10:28	SEP	24	09:37	OCT	2	13:51	OCT	10	04:21
	OCT	16	19:24	OCT	24	03:03	NOV	1	05:43	NOV	8	12:22
	NOV	15	06:41	NOV	22	23:23	NOV	30	20:51	DEC	7	19:52
	DEC	14	20:49	DEC	22	20:57	DEC	30	10:42			
2002										JAN	6	03:56
	JAN	13	13:31	JAN	21	17:45	JAN	28	22:52	FEB	4	13:35
	FEB	12	07:43	FEB	20	11:58	FEB	27	09:18	MAR	6	01:27
	MAR	14	02:05	MAR	22	02:24	MAR	28	18:26	APR	4	15:32
	APR	12	19:23	APR	20	12:46	APR	27	03:01	MAY	4	07:18
	MAY	12	10:47	MAY	19	19:43	MAY	26	11:52	JUN	3	00:08
	JUN	10	23:48	JUN	18	00:33	JUN	24	21:43	JUL	2	17:22
	JUL	10	10:27	JUL	17	04:54	JUL	24	09:08	AUG	1	10:25
	AUG	8	19:16	AUG	15	10:20	AUG	22	22:30	AUG	31	02:33
	SEP	7	03:11	SEP	13	18:14	SEP	21	14:00	SEP	29	17:04
	OCT	6	11:18	OCT	13	05:35	OCT	21	07:22	OCT	29	05:29
	NOV	4	20:36	NOV	11	20:51	NOV	20	01:36	NOV	27	15:48
	DEC	4	07:36	DEC	11	15:45	DEC	19	19:12	DEC	27	00:33
2003	JAN	2	20:25	JAN	10	13:11	JAN	18	10:50	JAN	25	08:35
	FEB	1	10:51	FEB	9	11:08	FEB	16	23:53	FEB	23	16:47
	MAR	3	02:37	MAR	11	07:14	MAR	18	10:36	MAR	25	01:52
	APR	1	19:21	APR	9	23:42	APR	16	19:37	APR	23	12:19
	MAY	1	12:16	MAY	9	11:57	MAY	16	03:37	MAY	23	00:31
	MAY	31	04:21	JUN	7	20:33	JUN	14	11:16	JUN	21	14:47
	JUN	29	18:40	JUL	7	02:38	JUL	13	19:22	JUL	21	07:04
	JUL	29	06:53	AUG	5	07:32	AUG	12	04:48	AUG	20	00:52
	AUG	27	17:27	SEP	3	12:36	SEP	10	16:36	SEP	18	19:06
	SEP	26	03:09	OCT	2	19:09	OCT	10	07:28	OCT	18	12:34
	OCT	25	12:51	NOV	1	04:22	NOV	9	01:15	NOV	17	04:17
	NOV	23	23:00	NOV	30	17:12	DEC	8	20:39	DEC	16	17:43
	DEC	23	09:45	DEC	30	10:01						
2004							JAN	7	15:43	JAN	15	04:45
	JAN	21	21:08	JAN	29	06:03	FEB	6	08:50	FEB	13	13:39
	FEB	20	09:21	FEB	28	03:27	MAR	6	23:17	MAR	13	21:00
	MAR	20	22:45	MAR	28	23:53	APR	5	11:05	APR	12	03:47
	APR	19	13:24	APR	27	17:39	MAY	4	20:36	MAY	11	11:07
	MAY	19	04:55	MAY	27	08:02	JUN	3	04:21	JUN	9	20:07
	JUN	17	20:29	JUN	25	19:11	JUL	2	11:10	JUL	9	07:39
	JUL	17	11:25	JUL	25	03:38	JUL	31	18:06	AUG	7	22:06
	AUG	16	01:24	AUG	23	10:10	AUG	30	02:23	SEP	6	15:13
	SEP	14	14:29	SEP	21	15:51	SEP	28	13:09	OCT	6	10:12
	OCT	14	02:48	OCT	20	21:56	OCT	28	03:08	NOV	5	05:53
	NOV	12	14:27	NOV	19	05:49	NOV	26	20:08	DEC	5	00:51
	DEC	12	01:29	DEC	18	16:40	DEC	26	15:07			

Phases of the Moon

Year	New Moon		First Quarter		Full Moon		Last Quarter	
2005	JAN 10	12:04	JAN 17	07:00	JAN 25	10:33	JAN 3	17:43
	FEB 8	22:30	FEB 16	00:20	FEB 24	04:55	FEB 2	07:25
	MAR 10	09:13	MAR 17	19:23	MAR 25	21:01	MAR 3	17:37
	APR 8	20:35	APR 16	14:41	APR 24	10:09	APR 2	00:54
	MAY 8	08:49	MAY 16	08:59	MAY 23	20:21	MAY 1	06:30
	JUN 6	21:58	JUN 15	01:23	JUN 22	04:16	MAY 30	11:54
	JUL 6	12:05	JUL 14	15:19	JUL 21	11:03	JUN 28	18:29
	AUG 5	03:06	AUG 13	02:37	AUG 19	17:55	JUL 28	03:22
	SEP 3	18:46	SEP 11	11:35	SEP 18	02:02	AUG 26	15:18
	OCT 3	10:28	OCT 10	19:01	OCT 17	12:14	SEP 25	06:38
	NOV 2	01:24	NOV 9	01:58	NOV 16	00:57	OCT 25	01:13
	DEC 1	15:00	DEC 8	09:39	DEC 15	16:16	NOV 23	22:09
	DEC 31	03:12					DEC 23	19:35
2006			JAN 6	19:60	JAN 14	09:48	JAN 22	15:16
	JAN 29	14:16	FEB 5	06:32	FEB 13	04:45	FEB 21	07:22
	FEB 28	00:33	MAR 6	20:18	MAR 14	23:36	MAR 22	19:17
	MAR 29	10:18	APR 5	12:02	APR 13	16:42	APR 21	03:34
	APR 27	19:46	MAY 5	05:13	MAY 13	06:54	MAY 20	09:25
	MAY 27	05:28	JUN 3	23:05	JUN 11	18:05	JUN 18	14:10
	JUN 25	16:07	JUL 3	16:36	JUL 11	03:04	JUL 17	19:12
	JUL 25	04:32	AUG 2	08:46	AUG 9	10:56	AUG 16	01:48
	AUG 23	19:11	AUG 31	22:57	SEP 7	18:44	SEP 14	11:12
	SEP 22	11:46	SEP 30	11:05	OCT 7	03:14	OCT 14	00:23
	OCT 22	05:15	OCT 29	21:27	NOV 5	12:59	NOV 12	17:46
	NOV 20	22:18	NOV 28	06:30	DEC 5	00:25	DEC 12	14:35
	DEC 20	14:01	DEC 27	14:49				
2007					JAN 3	13:58	JAN 11	12:50
	JAN 19	04:01	JAN 25	23:03	FEB 2	05:46	FEB 10	09:59
	FEB 17	16:15	FEB 24	07:57	MAR 3	23:18	MAR 12	04:01
	MAR 19	02:44	MAR 25	18:18	APR 2	17:16	APR 10	18:08
	APR 17	11:38	APR 24	06:37	MAY 2	10:11	MAY 10	04:27
	MAY 16	19:29	MAY 23	21:03	JUN 1	01:05	JUN 8	11:40
	JUN 15	03:15	JUN 22	13:15	JUN 30	13:50	JUL 7	16:49
	JUL 14	12:05	JUL 22	06:29	JUL 30	00:50	AUG 5	21:16
	AUG 12	23:04	AUG 20	23:54	AUG 28	10:37	SEP 4	02:32
	SEP 11	12:45	SEP 19	16:48	SEP 26	19:47	OCT 3	10:08
	OCT 11	05:02	OCT 19	08:33	OCT 26	04:53	NOV 1	21:23
	NOV 9	23:04	NOV 17	22:33	NOV 24	14:31	DEC 1	12:50
	DEC 9	17:41	DEC 17	10:18	DEC 24	01:17	DEC 31	07:57
2008								
	JAN 8	11:38	JAN 15	19:47	JAN 22	13:35	JAN 30	05:07
	FEB 7	03:45	FEB 14	03:36	FEB 21	03:31	FEB 29	02:21
	MAR 7	17:15	MAR 14	10:48	MAR 21	18:40	MAR 29	21:47
	APR 6	03:56	APR 12	18:34	APR 20	10:26	APR 28	14:10
	MAY 5	12:19	MAY 12	03:48	MAY 20	02:12	MAY 28	02:53
	JUN 3	19:24	JUN 10	15:03	JUN 18	17:31	JUN 26	12:07
	JUL 3	02:20	JUL 10	04:33	JUL 18	08:00	JUL 25	18:41
	AUG 1	10:14	AUG 8	20:18	AUG 16	21:18	AUG 23	23:52
	AUG 30	19:59	SEP 7	14:03	SEP 15	09:15	SEP 22	05:10
	SEP 29	08:13	OCT 7	09:04	OCT 14	20:04	OCT 21	12:02
	OCT 28	23:15	NOV 6	04:05	NOV 13	06:19	NOV 19	21:38
	NOV 27	16:56	DEC 5	21:29	DEC 12	16:39	DEC 19	10:34
	DEC 27	12:24						
2009			JAN 4	12:00	JAN 11	03:28	JAN 18	02:47
	JAN 26	07:56	FEB 2	23:17	FEB 9	14:50	FEB 16	21:36
	FEB 25	01:37	MAR 4	07:48	MAR 11	02:38	MAR 18	17:46
	MAR 26	16:08	APR 2	14:34	APR 9	14:56	APR 17	13:34
	APR 25	03:24	MAY 1	20:43	MAY 9	04:02	MAY 17	07:25
	MAY 24	12:12	MAY 31	03:19	JUN 7	18:12	JUN 15	22:15
	JUN 22	19:36	JUN 29	11:25	JUL 7	09:22	JUL 15	09:56
	JUL 22	02:35	JUL 28	21:57	AUG 6	00:56	AUG 13	18:59
	AUG 20	10:02	AUG 27	11:41	SEP 4	16:04	SEP 12	02:20
	SEP 18	18:45	SEP 26	04:51	OCT 4	06:12	OCT 11	09:60
	OCT 18	05:33	OCT 26	00:46	NOV 2	19:15	NOV 9	15:59
	NOV 16	19:14	NOV 24	21:44	DEC 2	07:32	DEC 9	00:15
	DEC 16	12:03	DEC 24	17:41	DEC 31	19:14		

Phases of the Moon

Year	New Moon		First Quarter		Full Moon		Last Quarter	
2010	JAN 15	7:13	JAN 23	10:57	JAN 30	6:19	JAN 7	10:40
	FEB 14	2:53	FEB 22	0:42	FEB 28	16:39	FEB 5	23:48
	MAR 15	21: 3	MAR 23	10:57	MAR 30	2:26	MAR 7	15:42
	APR 14	12:31	APR 21	18:15	APR 28	12:19	APR 6	9:37
	MAY 14	1: 6	MAY 20	23:38	MAY 27	23: 8	MAY 6	4:16
	JUN 12	11:16	JUN 19	4:27	JUN 26	11:31	JUN 4	22:16
	JUL 11	19:41	JUL 18	10:12	JUL 26	1:38	JUL 4	14:39
	AUG 10	3: 9	AUG 16	18:18	AUG 24	17: 6	AUG 3	5: 3
	SEP 8	10:30	SEP 15	5:55	SEP 23	9:19	SEP 1	17:25
	OCT 7	18:45	OCT 14	21:32	OCT 23	1:38	OCT 1	3:54
	NOV 6	4:52	NOV 13	16:42	NOV 21	17:29	OCT 30	12:46
	DEC 5	17:37	DEC 13	14: 0	DEC 21	8:15	NOV 28	20:37
2011							DEC 28	4:19
	JAN 4	9: 5	JAN 12	11:31	JAN 19	21:23	JAN 26	12:59
	FEB 3	2:33	FEB 11	7:15	FEB 18	8:37	FEB 24	23:28
	MAR 4	20:48	MAR 12	23:40	MAR 19	18:11	MAR 26	12: 9
	APR 3	14:34	APR 11	12: 1	APR 18	2:44	APR 25	2:47
	MAY 3	6:51	MAY 10	20:30	MAY 17	11: 8	MAY 24	18:53
	JUN 1	21: 3	JUN 9	2:11	JUN 15	20:13	JUN 23	11:49
	JUL 1	8:54	JUL 8	6:34	JUL 15	6:39	JUL 23	5: 4
	JUL 30	18:40	AUG 6	11:15	AUG 13	18:58	AUG 21	21:57
	AUG 29	3: 4	SEP 4	17:46	SEP 12	9:27	AUG 21	21:57
	SEP 27	11: 9	OCT 4	3:20	SEP 12	9:27	SEP 20	13:41
	OCT 26	19:57	NOV 2	16:39	OCT 12	2: 7	OCT 20	3:32
2012	NOV 25	6:11	DEC 2	9:50	NOV 10	20:18	NOV 18	15:11
	DEC 24	18: 8			DEC 10	14:38	DEC 18	0:49
			JAN 1	6:11	JAN 9	7:32	JAN 16	9: 9
	JAN 23	7:42	JAN 31	4: 6	FEB 7	21:56	FEB 14	17: 5
	FEB 21	22:37	MAR 1	1:19	MAR 8	9:42	MAR 15	1:26
	MAR 22	14:39	MAR 30	19:41	APR 6	19:20	APR 13	10:50
	APR 21	7:20	APR 29	10: 1	MAY 6	3:36	MAY 12	21:47
	MAY 20	23:48	MAY 28	20:21	JUN 4	11:12	JUN 11	10:42
	JUN 19	15: 3	JUN 27	3:36	JUL 3	18:52	JUL 11	1:50
	JUL 19	4:25	JUL 26	9: 2	AUG 2	3:27	AUG 9	18:58
	AUG 17	15:55	AUG 24	13:57	AUG 31	13:58	SEP 8	13:19
	SEP 16	2:11	SEP 22	19:41	SEP 30	3:19	SEP 8	13:19
2013	OCT 15	12: 3	OCT 22	3:30	OCT 29	19:51	OCT 8	7:36
	NOV 13	22: 8	NOV 20	14:27	NOV 28	14:47	NOV 7	0:38
	DEC 13	8:42	DEC 20	5:15	DEC 28	10:23	DEC 6	15:33
							JAN 5	3:57
	JAN 11	19:45	JAN 18	23:43	JAN 27	4:40	FEB 3	13:55
	FEB 10	7:23	FEB 17	20:31	FEB 25	20:29	MAR 4	21:52
	MAR 11	19:54	MAR 19	17:30	MAR 27	9:30	MAR 4	21:52
	APR 10	9:39	APR 18	12:37	APR 25	20:60	APR 3	4:37
	MAY 10	0:32	MAY 18	4:41	MAY 25	4:27	MAY 2	11:16
	JUN 8	15:59	JUN 16	17:29	JUN 23	11:34	MAY 31	19: 2
	JUL 8	7:16	JUL 16	3:21	JUL 22	18:17	JUN 30	4:59
	AUG 6	21:52	AUG 14	10:56	AUG 21	1:45	JUL 29	17:49
2014	SEP 5	11:36	SEP 12	17: 6	SEP 19	11:13	AUG 28	9:39
	OCT 5	0:34	OCT 11	23:60	OCT 18	23:38	SEP 27	3:57
	NOV 3	12:50	NOV 10	5:55	NOV 17	15:17	OCT 26	23:41
	DEC 3	0:22	DEC 9	15:12	DEC 17	9:29	NOV 25	19:27
							DEC 25	13:46
	JAN 1	11:15	JAN 8	3:41	JAN 16	4:54	JAN 24	5:17
	JAN 30	21:41	FEB 6	19:25	FEB 14	23:55	FEB 22	17:15
	MAR 1	8: 3	MAR 8	13:31	MAR 16	17:11	MAR 24	1:48
	MAR 30	18:48	APR 7	8:35	APR 15	7:45	APR 22	7:57
	APR 29	6:18	MAY 7	3:18	MAY 14	19:19	MAY 21	13: 6
	MAY 28	18:43	JUN 5	20:41	JUN 13	4:14	JUN 19	18:45
	JUN 27	8:11	JUL 5	11:59	JUL 12	11:27	JUN 27	3:57

SECTION 5

**PLANETARY
PHENOMENA**

1995 - 2010

Date	TDT (h:m)	Event
Jan 1	10:57	NEW MOON
4	07	Earth at Perihelion
8	15:44	FIRST QUARTER
11	22	Moon at Apogee: 405206 km
13	11	Neptune-Sun Conjunction
13	11	Venus at Greatest Elong: 47.0°W
16	20:28	FULL MOON
17	10	Uranus-Sun Conjunction
19	09	Mercury at Greatest Elong: 18.7°E
24	04:56	LAST QUARTER
26	17	Jupiter 1.7°S of Moon
27	12	Venus 0.2°S of Moon: Occn.
27	23	Moon at Perigee: 365883 km
30	22:50	NEW MOON
Feb 3	23	Mercury at Inferior Conjunction
7	12:55	FIRST QUARTER
8	18	Moon at Apogee: 404422 km
12	02	Mars at Opposition
15	12:17	FULL MOON
22	13:02	LAST QUARTER
23	02	Moon at Perigee: 370175 km
23	05	Jupiter 2.2°S of Moon
26	05	Venus 3.8°S of Moon
Mar 1	11	Mercury at Greatest Elong: 27.0°W
1	11:50	NEW MOON
6	02	Saturn-Sun Conjunction
8	15	Moon at Apogee: 404307 km
9	10:17	FIRST QUARTER
14	01	Mars at Aphelion
17	01:27	FULL MOON
20	13	Moon at Perigee: 366967 km
21	02:16	Vernal Equinox
22	14	Jupiter 2.5°S of Moon
23	20:10	LAST QUARTER
28	04	Venus 5.7°S of Moon
31	02:11	NEW MOON
Apr 5	10	Moon at Apogee: 404977 km
8	05:40	FIRST QUARTER
14	13	Mercury at Superior Conjunction
15	12:10	FULL MOON
15	12:21	Partial Lunar Eclipse; mag=0.109
17	08	Moon at Perigee: 361702 km
18	21	Jupiter 2.5°S of Moon
20	19	Venus at Aphelion
22	03:20	LAST QUARTER
27	05	Venus 4.5°S of Moon
29	17:37	Annular Solar Eclipse; mag=0.949
29	17:38	NEW MOON
May 3	01	Moon at Apogee: 405927 km
7	21:49	FIRST QUARTER
12	02	Mercury at Greatest Elong: 21.6°E
14	20:49	FULL MOON
15	15	Moon at Perigee: 358039 km
16	02	Jupiter 2.3°S of Moon
21	11:38	LAST QUARTER
27	07	Venus 0.8°S of Moon: Occn.
29	09:28	NEW MOON
30	08	Moon at Apogee: 406517 km
Jun 1	10	Jupiter at Opposition
5	05	Mercury at Inferior Conjunction
6	10:29	FIRST QUARTER
12	08	Jupiter 2.1°S of Moon
13	01	Moon at Perigee: 357007 km
13	04:04	FULL MOON
19	22:05	LAST QUARTER
21	20:36	Summer Solstice
26	02	Mercury 0.6°S of Moon: Occn.
26	11	Moon at Apogee: 406445 km
26	15	Venus 3.1°N of Moon
28	00:51	NEW MOON
29	16	Mercury at Greatest Elong: 22.0°W

Date	TDT (h:m)	Event
Jul 4	01	Earth at Aphelion
4	05	Mars 4.4°N of Moon
5	20:03	FIRST QUARTER
9	13	Jupiter 2.1°S of Moon
11	10	Moon at Perigee: 358776 km
12	10:49	FULL MOON
16	21	Neptune at Opposition
19	11:14	LAST QUARTER
22	04	Uranus at Opposition
23	20	Moon at Apogee: 405719 km
27	15:13	NEW MOON
28	02	Mercury at Superior Conjunction
Aug 1	15	Mars 2.4°N of Moon
4	03:15	FIRST QUARTER
5	20	Jupiter 2.4°S of Moon
8	14	Moon at Perigee: 362863 km
10	18:16	FULL MOON
11	03	Venus at Perihelion
18	03:07	LAST QUARTER
20	12	Moon at Apogee: 404766 km
21	00	Venus at Superior Conjunction
26	04:31	NEW MOON
28	07	Mercury 1.8°N of Moon
30	04	Mars 0.2°N of Moon: Occn.
Sep 2	04	Jupiter 2.8°S of Moon
2	09:00	FIRST QUARTER
5	01	Moon at Perigee: 367910 km
9	03:36	FULL MOON
9	04	Mercury at Greatest Elong: 27.0°E
14	15	Saturn at Opposition
16	21:11	LAST QUARTER
17	06	Moon at Apogee: 404264 km
23	12:14	Autumnal Equinox
24	16:55	NEW MOON
27	18	Mars 2.0°S of Moon
29	15	Jupiter 3.2°S of Moon
30	04	Moon at Perigee: 369504 km
Oct 1	14:33	FIRST QUARTER
5	01	Mercury at Inferior Conjunction
8	15:52	FULL MOON
8	16:04	Pen. Lunar Eclipse; mag=0.814
15	02	Moon at Apogee: 404607 km
16	16:26	LAST QUARTER
20	14	Mercury at Greatest Elong: 18.2°W
24	04:29	Total Solar Eclipse; mag=1.020
24	04:36	NEW MOON
25	11	Venus 1.9°S of Moon
26	11	Mars 3.9°S of Moon
26	21	Moon at Perigee: 364792 km
27	06	Jupiter 3.6°S of Moon
30	21:15	FIRST QUARTER
Nov 7	07:22	FULL MOON
11	21	Moon at Apogee: 405534 km
15	11:39	LAST QUARTER
22	15:43	NEW MOON
23	05	Mercury at Superior Conjunction
23	23	Moon at Perigee: 359667 km
24	09	Venus 5.6°S of Moon
29	06:29	FIRST QUARTER
Dec 7	01:28	FULL MOON
9	10	Moon at Apogee: 406323 km
15	05:29	LAST QUARTER
18	21	Jupiter-Sun Conjunction
22	02:23	NEW MOON
22	08:18	Winter Solstice
22	10	Moon at Perigee: 356798 km
24	10	Venus 7.0°S of Moon
28	19:09	FIRST QUARTER

Date	TDT (h:m)	Event
Jan	2 17	Mercury at Greatest Elong: 19.5°E
	4 10	Earth at Perihelion
	5 12	Moon at Apogee: 406530 km
	5 20:52	FULL MOON
	13 20:43	LAST QUARTER
	15 20	Neptune-Sun Conjunction
	18 20	Jupiter 4.6°S of Moon
	18 22	Mercury at Inferior Conjunction
	19 23	Moon at Perigee: 357253 km
	20 12:52	NEW MOON
	21 17	Uranus-Sun Conjunction
	23 08	Venus 4.9°S of Moon
	24 04	Saturn 4.7°S of Moon
	27 11:17	FIRST QUARTER
Feb	1 16	Moon at Apogee: 406165 km
	4 15:59	FULL MOON
	11 20	Mercury at Greatest Elong: 25.9°W
	12 08:36	LAST QUARTER
	15 15	Jupiter 4.9°S of Moon
	17 09	Moon at Perigee: 360881 km
	18 23:32	NEW MOON
	20 13	Mars at Perihelion
	20 19	Saturn 4.3°S of Moon
	22 05	Venus 0.1°N of Moon: Occn.
	26 05:56	FIRST QUARTER
	29 07	Moon at Apogee: 405277 km
Mar	4 13	Mars-Sun Conjunction
	5 09:24	FULL MOON
	12 17:17	LAST QUARTER
	16 06	Moon at Perigee: 366290 km
	17 19	Saturn-Sun Conjunction
	19 10:47	NEW MOON
	20 08:04	Vernal Equinox
	22 20	Venus at Perihelion
	23 00	Venus 5.4°N of Moon
	27 01:34	FIRST QUARTER
	28 03	Moon at Apogee: 404466 km
	28 07	Mercury at Superior Conjunction
Apr	1 00	Venus at Greatest Elong: 46.0°E
	4 00:09	FULL MOON
	4 00:13	Total Lunar Eclipse; mag=1.384
	10 23:40	LAST QUARTER
	11 03	Moon at Perigee: 369911 km
	16 01	Saturn 3.7°S of Moon
	17 22:42	Partial Solar Eclipse; mag=0.879
	17 22:51	NEW MOON
	23 08	Mercury at Greatest Elong: 20.2°E
	24 22	Moon at Apogee: 404376 km
	25 20:43	FIRST QUARTER
May	3 11:50	FULL MOON
	6 22	Moon at Perigee: 366530 km
	10 05:09	LAST QUARTER
	13 13	Saturn 3.4°S of Moon
	15 01	Mercury at Inferior Conjunction
	17 11:49	NEW MOON
	22 16	Moon at Apogee: 405075 km
	25 14:14	FIRST QUARTER
Jun	1 20:49	FULL MOON
	3 16	Moon at Perigee: 361489 km
	8 11:11	LAST QUARTER
	9 22	Saturn 3.2°S of Moon
	10 09	Mercury at Greatest Elong: 23.7°W
	10 16	Venus at Inferior Conjunction
	14 00	Mercury 0.4°N of Moon: Occn.
	14 01	Mars 3.6°N of Moon
	16 01:38	NEW MOON
	19 06	Moon at Apogee: 406034 km
	21 02:25	Summer Solstice
	24 05:23	FIRST QUARTER

Date	TDT (h:m)	Event
Jul	1 04:00	FULL MOON
	1 10	Jupiter 5.1°S of Moon
	1 22	Moon at Perigee: 357948 km
	4 12	Jupiter at Opposition
	5 13	Earth at Aphelion
	7 06	Saturn 2.9°S of Moon
	7 18:59	LAST QUARTER
	11 09	Mercury at Superior Conjunction
	12 09	Venus 0.4°S of Moon: Occn.
	13 04	Venus at Aphelion
	15 16:16	NEW MOON
	16 14	Moon at Apogee: 406600 km
	18 10	Neptune at Opposition
	23 17:47	FIRST QUARTER
	25 17	Uranus at Opposition
	30 08	Moon at Perigee: 356949 km
	30 10:37	FULL MOON
Aug	3 13	Saturn 2.8°S of Moon
	6 05:26	LAST QUARTER
	10 04	Venus 1.2°N of Moon
	12 16	Moon at Apogee: 406477 km
	14 07:35	NEW MOON
	16 18	Mercury 0.3°N of Moon: Occn.
	20 02	Venus at Greatest Elong: 45.8°W
	21 16	Mercury at Greatest Elong: 27.4°E
	22 03:35	FIRST QUARTER
	27 17	Moon at Perigee: 358777 km
	28 17:53	FULL MOON
	30 21	Saturn 2.9°S of Moon
Sep	4 19:04	LAST QUARTER
	8 23	Venus 3.3°N of Moon
	9 02	Moon at Apogee: 405736 km
	12 23:07	NEW MOON
	17 13	Mercury at Inferior Conjunction
	20 11:22	FIRST QUARTER
	22 18:01	Autumnal Equinox
	24 22	Moon at Perigee: 363058 km
	26 19	Saturn at Opposition
	27 02:51	FULL MOON
	27 02:56	Total Lunar Eclipse; mag=1.234
	27 04	Saturn 3.1°S of Moon
Oct	3 06	Mercury at Greatest Elong: 17.9°W
	4 12:01	LAST QUARTER
	6 18	Moon at Apogee: 404792 km
	9 04	Venus 3.6°N of Moon
	12 13:59	Partial Solar Eclipse; mag=0.760
	12 14:14	NEW MOON
	19 18:10	FIRST QUARTER
	22 09	Moon at Perigee: 368341 km
	24 10	Saturn 3.3°S of Moon
	26 14:11	FULL MOON
Nov	2 00	Mercury at Superior Conjunction
	2 13	Venus at Perihelion
	3 07:47	LAST QUARTER
	3 14	Moon at Apogee: 404312 km
	8 10	Venus 1.4°N of Moon
	11 04:16	NEW MOON
	16 05	Moon at Perigee: 369457 km
	18 01:11	FIRST QUARTER
	20 15	Saturn 3.2°S of Moon
	25 04:10	FULL MOON
Dec	1 11	Moon at Apogee: 404656 km
	3 05:04	LAST QUARTER
	3 21	Mars 3.8°N of Moon
	8 13	Venus 2.0°S of Moon
	10 16:56	NEW MOON
	13 04	Moon at Perigee: 364232 km
	15 19	Mercury at Greatest Elong: 20.5°E
	17 09:34	FIRST QUARTER
	17 20	Saturn 2.8°S of Moon
	21 14:07	Winter Solstice
	24 20:41	FULL MOON
	29 05	Moon at Apogee: 405525 km

Date	TDI (h:m)	Event
Jan 1	04	Mars 3.1°N of Moon
2	00	Earth at Perihelion
2	01	Mercury at Inferior Conjunction
2	01:46	LAST QUARTER
7	17	Venus 4.5°S of Moon
9	04:26	NEW MOON
10	09	Moon at Perigee: 359233 km
14	05	Saturn 2.3°S of Moon
15	20:05	FIRST QUARTER
17	06	Neptune-Sun Conjunction
19	14	Jupiter-Sun Conjunction
23	15:11	FULL MOON
24	05	Mercury at Greatest Elong: 24.5°W
24	23	Uranus-Sun Conjunction
25	17	Moon at Apogee: 406229 km
28	23	Mars 2.9°N of Moon
29	01	Mars at Aphelion
31	19:44	LAST QUARTER
Feb 7	15:07	NEW MOON
7	21	Moon at Perigee: 356846 km
10	17	Saturn 1.8°S of Moon
14	08:59	FIRST QUARTER
21	17	Moon at Apogee: 406396 km
22	10:27	FULL MOON
22	21	Venus at Aphelion
25	01	Mars 3.5°N of Moon
Mar 2	09:43	LAST QUARTER
6	14	Jupiter 4.5°S of Moon
8	09	Moon at Perigee: 357760 km
9	01:16	NEW MOON
9	01:29	Total Solar Eclipse; mag=1.042
11	15	Mercury at Superior Conjunction
16	00:07	FIRST QUARTER
17	08	Mars at Opposition
20	13:56	Vernal Equinox
21	00	Moon at Apogee: 405959 km
23	14	Mars 4.1°N of Moon
24	04:40	Partial Lunar Eclipse; mag=0.913
24	04:46	FULL MOON
30	22	Saturn-Sun Conjunction
31	19:44	LAST QUARTER
Apr 2	13	Venus at Superior Conjunction
3	08	Jupiter 4.2°S of Moon
5	17	Moon at Perigee: 361500 km
6	01	Mercury at Greatest Elong: 19.2°E
7	11:04	NEW MOON
14	17:00	FIRST QUARTER
17	15	Moon at Apogee: 405005 km
19	06	Mars 3.7°N of Moon
22	20:36	FULL MOON
25	10	Mercury at Inferior Conjunction
30	02:42	LAST QUARTER
30	21	Jupiter 3.9°S of Moon
May 3	11	Moon at Perigee: 366626 km
4	16	Saturn 0.8°S of Moon: Occn.
6	20:49	NEW MOON
14	10:55	FIRST QUARTER
15	10	Moon at Apogee: 404213 km
16	16	Mars 2.2°N of Moon
22	09:16	FULL MOON
22	23	Mercury at Greatest Elong: 25.4°W
28	06	Jupiter 3.7°S of Moon
29	07	Moon at Perigee: 369791 km
29	07:54	LAST QUARTER
Jun 1	03	Saturn 0.5°S of Moon: Occn.
3	13	Mercury 1.6°N of Moon
5	07:06	NEW MOON
6	17	Venus 6.0°N of Moon
12	05	Moon at Apogee: 404187 km
13	04:51	FIRST QUARTER
13	16	Mars 0.3°N of Moon: Occn.
15	05	Venus at Perihelion
20	19:12	FULL MOON
21	08:21	Summer Solstice
24	05	Moon at Perigee: 366495 km
24	12	Jupiter 3.6°S of Moon
25	19	Mercury at Superior Conjunction
27	12:43	LAST QUARTER
28	12	Saturn 0.2°S of Moon: Occn.

Date	TDI (h:m)	Event
Jul 4	18:42	NEW MOON
4	20	Earth at Aphelion
7	02	Venus 5.1°N of Moon
9	23	Moon at Apogee: 404946 km
12	01	Mars 1.9°S of Moon
12	21:44	FIRST QUARTER
20	03:23	FULL MOON
20	23	Neptune at Opposition
21	17	Jupiter 3.7°S of Moon
21	23	Moon at Perigee: 361577 km
25	19	Saturn 0.0°N of Moon: Occn.
26	18:26	LAST QUARTER
30	05	Uranus at Opposition
Aug 3	08:16	NEW MOON
4	00	Mercury at Greatest Elong: 27.3°E
5	19	Mercury 1.0°S of Moon: Occn.
6	09	Venus 1.6°N of Moon
6	14	Moon at Apogee: 405940 km
9	15	Mars 3.9°S of Moon
9	16	Jupiter at Opposition
11	12:43	FIRST QUARTER
17	22	Jupiter 4.0°S of Moon
18	10:58	FULL MOON
19	05	Moon at Perigee: 358018 km
22	02	Saturn 0.0°N of Moon: Occn.
25	02:21	LAST QUARTER
31	14	Mercury at Inferior Conjunction
Sep 1	23:53	NEW MOON
2	00:04	Partial Solar Eclipse; mag=0.902
2	21	Moon at Apogee: 406481 km
5	12	Venus 3.3°S of Moon
10	01:33	FIRST QUARTER
14	04	Jupiter 4.3°S of Moon
16	15	Moon at Perigee: 356966 km
16	18:47	Total Lunar Eclipse; mag=1.188
16	18:52	FULL MOON
16	21	Mercury at Greatest Elong: 17.9°W
18	10	Saturn 0.2°S of Moon: Occn.
22	23:57	Autumnal Equinox
23	13:32	LAST QUARTER
30	00	Moon at Apogee: 406331 km
Oct 1	16:53	NEW MOON
5	14	Venus at Aphelion
9	12:24	FIRST QUARTER
10	04	Saturn at Opposition
11	11	Jupiter 4.2°S of Moon
13	21	Mercury at Superior Conjunction
15	02	Moon at Perigee: 358861 km
15	18	Saturn 0.4°S of Moon: Occn.
16	03:47	FULL MOON
23	04:47	LAST QUARTER
27	09	Moon at Apogee: 405606 km
31	10:02	NEW MOON
Nov 6	05	Venus at Greatest Elong: 47.1°E
7	20	Jupiter 3.9°S of Moon
7	21:45	FIRST QUARTER
12	01	Saturn 0.4°S of Moon: Occn.
12	08	Moon at Perigee: 363379 km
14	14:12	FULL MOON
22	00:01	LAST QUARTER
24	02	Moon at Apogee: 404696 km
28	17	Mercury at Greatest Elong: 21.6°E
30	02:15	NEW MOON
Dec 3	17	Venus 6.7°S of Moon
5	08	Jupiter 3.3°S of Moon
7	06:11	FIRST QUARTER
9	07	Saturn 0.2°S of Moon: Occn.
9	17	Moon at Perigee: 368878 km
14	02:38	FULL MOON
17	08	Mercury at Inferior Conjunction
21	20:08	Winter Solstice
21	21:49	LAST QUARTER
21	23	Moon at Apogee: 404264 km
29	16:58	NEW MOON
31	13	Venus 1.3°S of Moon

Date	TDT (h:m)	Event
Jan 1	03	Mars 3.9°S of Moon
1	23	Jupiter 2.7°S of Moon
3	09	Moon at Perigee: 369238 km
4	18	Earth at Perihelion
5	12	Saturn 0.2°N of Moon: Occn.
5	14:20	FIRST QUARTER
6	14	Mercury at Greatest Elong: 23.1°W
7	13	Mars at Perihelion
12	17:25	FULL MOON
16	11	Venus at Inferior Conjunction
18	21	Moon at Apogee: 404635 km
19	16	Neptune-Sun Conjunction
20	19:48	LAST QUARTER
25	22	Venus at Perihelion
27	00	Venus 3.1°N of Moon
28	06:02	NEW MOON
29	05	Uranus-Sun Conjunction
30	01	Mars 1.7°S of Moon
30	14	Moon at Perigee: 363799 km
Feb 1	21	Saturn 0.7°N of Moon: Occn.
3	22:55	FIRST QUARTER
11	10:24	FULL MOON
15	15	Moon at Apogee: 405495 km
19	15:35	LAST QUARTER
22	08	Mercury at Superior Conjunction
23	12	Jupiter-Sun Conjunction
23	17	Venus 1.6°N of Moon
26	17:28	NEW MOON
26	17:30	Total Solar Eclipse; mag=1.042
27	20	Moon at Perigee: 359088 km
Mar 1	09	Saturn 1.0°N of Moon: Occn.
5	08:42	FIRST QUARTER
13	04:24	Pen. Lunar Eclipse; mag=0.699
13	04:35	FULL MOON
15	01	Moon at Apogee: 406188 km
20	04	Mercury at Greatest Elong: 18.5°E
20	19:55	Vernal Equinox
21	07:43	LAST QUARTER
24	19	Venus 0.1°S of Moon: Occn.
26	12	Jupiter 0.8°S of Moon: Occn.
27	19	Venus at Greatest Elong: 46.5°W
28	03:15	NEW MOON
28	07	Moon at Perigee: 357027 km
Apr 3	20:20	FIRST QUARTER
6	16	Mercury at Inferior Conjunction
11	02	Moon at Apogee: 406347 km
11	22:25	FULL MOON
13	11	Saturn-Sun Conjunction
19	19:54	LAST QUARTER
23	07	Jupiter 0.2°S of Moon: Occn.
23	08	Venus 0.1°N of Moon: Occn.
24	19	Mercury 0.9°N of Moon: Occn.
25	18	Moon at Perigee: 358043 km
26	11:43	NEW MOON
May 3	10:05	FIRST QUARTER
4	17	Mercury at Greatest Elong: 26.7°W
8	09	Moon at Apogee: 405862 km
11	14:31	FULL MOON
12	19	Mars-Sun Conjunction
18	07	Venus at Aphelion
19	04:33	LAST QUARTER
20	23	Jupiter 0.4°N of Moon: Occn.
22	22	Venus 1.7°N of Moon
23	08	Saturn 1.7°N of Moon
24	00	Moon at Perigee: 361661 km
25	19:34	NEW MOON
Jun 2	01:45	FIRST QUARTER
5	00	Moon at Apogee: 404923 km
10	04:20	FULL MOON
10	07	Mercury at Superior Conjunction
17	10:34	LAST QUARTER
17	11	Jupiter 0.8°N of Moon: Occn.
19	20	Saturn 2.0°N of Moon
20	18	Moon at Perigee: 366593 km
21	14:03	Summer Solstice
21	14	Venus 3.3°N of Moon
24	03:52	NEW MOON

Date	TDT (h:m)	Event
Jul 1	18:42	FIRST QUARTER
2	18	Moon at Apogee: 404222 km
4	03	Earth at Aphelion
9	16:03	FULL MOON
14	19	Jupiter 1.0°N of Moon: Occn.
16	14	Moon at Perigee: 369696 km
16	15:09	LAST QUARTER
17	03	Mercury at Greatest Elong: 26.7°E
17	05	Saturn 2.2°N of Moon
23	13	Neptune at Opposition
23	13:45	NEW MOON
25	14	Mercury 2.1°S of Moon
30	12	Moon at Apogee: 404305 km
31	12:05	FIRST QUARTER
Aug 3	17	Uranus at Opposition
8	02:12	FULL MOON
8	02:26	Pen. Lunar Eclipse; mag=0.118
11	00	Jupiter 0.9°N of Moon: Occn.
11	12	Moon at Perigee: 366446 km
13	12	Saturn 2.2°N of Moon
14	00	Mercury at Inferior Conjunction
14	19:46	LAST QUARTER
19	20	Mars 3.8°N of Moon
20	14	Venus 2.7°N of Moon
22	02:04	NEW MOON
22	02:07	Annular Solar Eclipse; mag=0.969
27	06	Moon at Apogee: 405152 km
30	05:07	FIRST QUARTER
31	09	Mercury at Greatest Elong: 18.2°W
Sep 6	11:07	Pen. Lunar Eclipse; mag=0.804
6	11:23	FULL MOON
7	04	Jupiter 0.5°N of Moon: Occn.
7	15	Venus at Perihelion
8	06	Moon at Perigee: 361374 km
9	18	Saturn 2.0°N of Moon
13	01:59	LAST QUARTER
16	06	Jupiter at Opposition
17	13	Mars 2.5°N of Moon
20	17:03	NEW MOON
23	05:39	Autumnal Equinox
23	22	Moon at Apogee: 406173 km
25	20	Mercury at Superior Conjunction
28	21:11	FIRST QUARTER
Oct 4	10	Jupiter 0.2°N of Moon: Occn.
5	20:14	FULL MOON
6	13	Moon at Perigee: 357633 km
7	01	Saturn 1.8°N of Moon
12	11:15	LAST QUARTER
16	04	Mars 1.0°N of Moon: Occn.
20	10:11	NEW MOON
21	05	Moon at Apogee: 406667 km
23	18	Saturn at Opposition
28	11:47	FIRST QUARTER
30	04	Venus at Superior Conjunction
31	16	Jupiter 0.2°N of Moon: Occn.
Nov 3	09	Saturn 1.7°N of Moon
4	01	Moon at Perigee: 356615 km
4	05:20	FULL MOON
11	00:34	LAST QUARTER
11	09	Mercury at Greatest Elong: 22.9°E
13	18	Mars 0.5°S of Moon: Occn.
17	06	Moon at Apogee: 406494 km
19	04:28	NEW MOON
27	00:23	FIRST QUARTER
28	01	Jupiter 0.6°N of Moon: Occn.
30	17	Saturn 1.8°N of Moon
Dec 1	15	Mercury at Inferior Conjunction
2	12	Moon at Perigee: 358844 km
3	15:21	FULL MOON
10	18:01	LAST QUARTER
12	08	Mars 1.8°S of Moon
14	17	Moon at Apogee: 405758 km
17	01	Mars at Aphelion
18	22:44	NEW MOON
20	04	Mercury at Greatest Elong: 21.6°W
22	01:58	Winter Solstice
25	11	Jupiter 1.2°N of Moon: Occn.
26	10:48	FIRST QUARTER
27	23	Saturn 2.2°N of Moon
29	00	Venus at Aphelion
30	18	Moon at Perigee: 363787 k

Date	TDT (h:m)	Event
Jan 2	02:51	FULL MOON
3	12	Earth at Perihelion
9	14:28	LAST QUARTER
9	20	Mars 2.7°S of Moon
11	12	Moon at Apogee: 404828 km
17	15:48	NEW MOON
19	08	Venus 2.0°S of Moon
21	23	Jupiter 1.8°N of Moon
22	02	Neptune-Sun Conjunction
24	06	Saturn 2.5°N of Moon
24	19:18	FIRST QUARTER
26	21	Moon at Perigee: 369262 km
31	16:08	FULL MOON
31	16:22	Pen. Lunar Eclipse; mag=1.002
Feb 2	10	Uranus-Sun Conjunction
4	05	Mercury at Superior Conjunction
7	04	Mars 3.1°S of Moon
8	09	Moon at Apogee: 404386 km
8	12:03	LAST QUARTER
16	06:35	Annular Solar Eclipse; mag=0.987
16	06:41	NEW MOON
18	06	Venus 1.9°N of Moon
18	16	Jupiter 2.4°N of Moon
20	14	Moon at Perigee: 368654 km
20	15	Saturn 2.7°N of Moon
23	02:47	FIRST QUARTER
Mar 2	07:00	FULL MOON
3	13	Mercury at Greatest Elong: 18.2°E
7	02	Mars 3.1°S of Moon
8	05	Moon at Apogee: 404752 km
10	08:43	LAST QUARTER
17	18:50	NEW MOON
19	19	Mercury at Inferior Conjunction
20	00	Moon at Perigee: 363270 km
20	01	Venus 5.3°N of Moon
20	03	Saturn 2.8°N of Moon
21	01:47	Vernal Equinox
24	10:21	FIRST QUARTER
31	22:50	FULL MOON
Apr 1	10	Jupiter-Sun Conjunction
3	08	Mars 3.2°S of Moon
4	22	Moon at Apogee: 405599 km
9	02:50	LAST QUARTER
14	04	Mercury 1.1°N of Moon: Occn.
16	04:24	NEW MOON
16	16	Mercury at Greatest Elong: 27.6°W
17	05	Moon at Perigee: 358893 km
18	21	Venus 6.6°N of Moon
20	08	Venus at Perihelion
22	19:04	FIRST QUARTER
24	16	Mars at Opposition
27	10	Saturn-Sun Conjunction
29	21	Mars 3.9°S of Moon
30	14:55	FULL MOON
May 2	06	Moon at Apogee: 406279 km
5	13	Jupiter at Perihelion
8	17:25	LAST QUARTER
13	05	Jupiter 3.6°N of Moon
15	12:06	NEW MOON
15	15	Moon at Perigee: 357097 km
18	15	Venus 5.6°N of Moon
22	05:34	FIRST QUARTER
25	18	Mercury at Superior Conjunction
29	08	Moon at Apogee: 406398 km
30	06:41	FULL MOON
Jun 7	04:16	LAST QUARTER
10	00	Jupiter 3.9°N of Moon
11	02	Saturn 3.0°N of Moon
11	13	Venus at Greatest Elong: 45.4°E
13	01	Moon at Perigee: 358191 km
13	19:04	NEW MOON
15	08	Mercury 4.5°N of Moon
17	03	Venus 2.3°N of Moon
20	18:11	FIRST QUARTER
21	19:50	Summer Solstice
25	16	Moon at Apogee: 405859 km
28	21:39	FULL MOON
28	23	Mercury at Greatest Elong: 25.5°E

Date	TDT (h:m)	Event
Jul 6	11:55	LAST QUARTER
6	20	Earth at Aphelion
7	15	Jupiter 4.1°N of Moon
8	15	Saturn 3.1°N of Moon
11	06	Moon at Perigee: 361777 km
13	02:25	NEW MOON
15	23	Venus 3.2°S of Moon
20	08:58	FIRST QUARTER
23	06	Moon at Apogee: 404926 km
26	02	Neptune at Opposition
26	16	Mercury at Inferior Conjunction
28	11:26	FULL MOON
28	11:33	Partial Lunar Eclipse; mag=0.399
Aug 4	02	Jupiter 4.1°N of Moon
4	17:28	LAST QUARTER
5	00	Saturn 3.0°N of Moon
8	00	Moon at Perigee: 366713 km
8	04	Uranus at Opposition
10	16	Venus at Aphelion
11	11:04	Total Solar Eclipse; mag=1.024
11	11:10	NEW MOON
14	14	Mercury at Greatest Elong: 18.8°W
19	01:45	FIRST QUARTER
19	23	Moon at Apogee: 404261 km
20	12	Venus at Inferior Conjunction
26	23:50	FULL MOON
31	09	Jupiter 3.9°N of Moon
Sep 1	06	Saturn 2.9°N of Moon
2	18	Moon at Perigee: 369817 km
2	22:22	LAST QUARTER
8	15	Mercury at Superior Conjunction
9	22:03	NEW MOON
16	19	Moon at Apogee: 404387 km
17	20:06	FIRST QUARTER
23	11:33	Autumnal Equinox
25	10:53	FULL MOON
27	13	Jupiter 3.7°N of Moon
28	12	Saturn 2.6°N of Moon
28	17	Moon at Perigee: 366254 km
Oct 2	04:09	LAST QUARTER
5	17	Venus 4.5°S of Moon
9	11:35	NEW MOON
14	14	Moon at Apogee: 405253 km
17	15:01	FIRST QUARTER
23	22	Jupiter at Opposition
24	17	Jupiter 3.6°N of Moon
24	21:04	FULL MOON
24	22	Mercury at Greatest Elong: 24.3°E
25	18	Saturn 2.5°N of Moon
26	13	Moon at Perigee: 360951 km
31	01	Venus at Greatest Elong: 46.5°W
31	12:11	LAST QUARTER
Nov 4	00	Venus 3.2°S of Moon
6	13	Saturn at Opposition
8	03:54	NEW MOON
11	06	Moon at Apogee: 406217 km
13	16	Mars 3.0°S of Moon
15	22	Mercury at Inferior Conjunction
16	09:05	FIRST QUARTER
20	23	Jupiter 3.7°N of Moon
22	01	Saturn 2.5°N of Moon
23	07:06	FULL MOON
23	22	Moon at Perigee: 357281 km
25	13	Mars at Perihelion
29	23:24	LAST QUARTER
Dec 1	01	Venus at Perihelion
3	01	Mercury at Greatest Elong: 20.4°W
3	21	Venus 3.0°S of Moon
6	01	Mercury 2.8°S of Moon
7	22:33	NEW MOON
8	11	Moon at Apogee: 406626 km
12	19	Mars 0.6°S of Moon: Occn.
16	00:54	FIRST QUARTER
18	06	Jupiter 4.0°N of Moon
19	09	Saturn 2.8°N of Moon
22	07:45	Winter Solstice
22	11	Moon at Perigee: 356655 km
22	17:33	FULL MOON
29	14:07	LAST QUARTER

Date	TDT (h:m)	Event
Jan 3	04	Venus 2.6°S of Moon
3	10	Earth at Perihelion
4	12	Moon at Apogee: 406414 km
6	18:15	NEW MOON
10	19	Mars 1.9°N of Moon
14	13:38	FIRST QUARTER
14	15	Jupiter 4.3°N of Moon
15	17	Saturn 3.0°N of Moon
16	01	Mercury at Superior Conjunction
19	23	Moon at Perigee: 359363 km
21	04:42	FULL MOON
21	04:47	Total Lunar Eclipse; mag=1.328
24	11	Neptune-Sun Conjunction
28	07:57	LAST QUARTER
Feb 1	01	Moon at Apogee: 405609 km
2	15	Venus 1.4°S of Moon
5	12:50	Partial Solar Eclipse; mag=0.575
5	13:05	NEW MOON
6	15	Uranus-Sun Conjunction
8	17	Mars 3.9°N of Moon
11	03	Jupiter 4.5°N of Moon
12	00	Saturn 3.1°N of Moon
12	23:25	FIRST QUARTER
15	01	Mercury at Greatest Elong: 18.1°E
17	03	Moon at Perigee: 364500 km
19	16:28	FULL MOON
27	03:53	LAST QUARTER
28	21	Moon at Apogee: 404619 km
Mar 1	15	Mercury at Inferior Conjunction
4	01	Venus 0.6°N of Moon: Occn.
6	05:19	NEW MOON
9	17	Jupiter 4.4°N of Moon
10	09	Saturn 3.1°N of Moon
13	07:01	FIRST QUARTER
15	00	Moon at Perigee: 369530 km
20	04:45	FULL MOON
20	07:36	Vernal Equinox
22	09	Venus at Aphelion
27	17	Moon at Apogee: 404169 km
28	00:19	LAST QUARTER
28	21	Mercury at Greatest Elong: 27.8°W
Apr 2	13	Mercury 1.6°N of Moon
3	06	Venus 2.8°N of Moon
4	18:15	NEW MOON
6	11	Jupiter 4.3°N of Moon
6	21	Saturn 2.9°N of Moon
8	22	Moon at Perigee: 368258 km
11	13:31	FIRST QUARTER
18	17:42	FULL MOON
24	12	Moon at Apogee: 404560 km
26	19:29	LAST QUARTER
May 4	04:14	NEW MOON
6	09	Moon at Perigee: 363172 km
8	07	Jupiter-Sun Conjunction
9	04	Mercury at Superior Conjunction
10	19	Saturn-Sun Conjunction
10	19:59	FIRST QUARTER
18	07:35	FULL MOON
22	04	Moon at Apogee: 405427 km
26	11:55	LAST QUARTER
Jun 2	12:16	NEW MOON
3	13	Moon at Perigee: 359093 km
4	04	Mercury 3.6°N of Moon
9	03:26	FIRST QUARTER
9	13	Mercury at Greatest Elong: 24.0°E
11	10	Venus at Superior Conjunction
16	22:28	FULL MOON
18	13	Moon at Apogee: 406112 km
21	01:49	Summer Solstice
25	01:03	LAST QUARTER
28	20	Saturn 2.6°N of Moon
29	01	Jupiter 3.6°N of Moon

Date	TDT (h:m)	Event
Jul 1	16	Mars-Sun Conjunction
1	19:22	NEW MOON
1	19:37	Partial Solar Eclipse; mag=0.481
1	22	Moon at Perigee: 357363 km
3	20	Earth at Aphelion
6	11	Mercury at Inferior Conjunction
8	12:50	FIRST QUARTER
12	18	Venus at Perihelion
15	16	Moon at Apogee: 406200 km
16	13:57	Total Lunar Eclipse; mag=1.773
16	13:57	FULL MOON
24	11:07	LAST QUARTER
26	10	Saturn 2.4°N of Moon
26	20	Jupiter 3.3°N of Moon
27	09	Mercury at Greatest Elong: 19.8°W
27	15	Neptune at Opposition
30	08	Moon at Perigee: 358379 km
31	02:13	Partial Solar Eclipse; mag=0.598
31	02:27	NEW MOON
Aug 7	01:01	FIRST QUARTER
11	14	Uranus at Opposition
11	22	Moon at Apogee: 405650 km
15	05:15	FULL MOON
22	01	Mercury at Superior Conjunction
22	18:56	LAST QUARTER
22	19	Saturn 2.1°N of Moon
23	10	Jupiter 2.9°N of Moon
27	14	Moon at Perigee: 361911 km
29	10:21	NEW MOON
30	23	Venus 3.8°S of Moon
Sep 5	16:29	FIRST QUARTER
8	13	Moon at Apogee: 404761 km
13	19:39	FULL MOON
19	01	Saturn 1.8°N of Moon
19	19	Jupiter 2.5°N of Moon
21	01:34	LAST QUARTER
22	17:29	Autumnal Equinox
24	08	Moon at Perigee: 366966 km
25	17	Mars 2.3°S of Moon
27	19:54	NEW MOON
30	00	Venus 5.3°S of Moon
Oct 5	11:03	FIRST QUARTER
6	07	Moon at Apogee: 404169 km
6	10	Mercury at Greatest Elong: 25.5°E
13	08:56	FULL MOON
16	06	Saturn 1.6°N of Moon
17	00	Jupiter 2.3°N of Moon
19	22	Moon at Perigee: 370113 km
20	08:04	LAST QUARTER
24	06	Mars 3.5°S of Moon
27	07:59	NEW MOON
30	02	Mercury at Inferior Conjunction
30	08	Venus 4.5°S of Moon
Nov 3	01	Mars at Aphelion
3	04	Moon at Apogee: 404379 km
4	07:32	FIRST QUARTER
11	21:17	FULL MOON
12	11	Saturn 1.6°N of Moon
13	03	Jupiter 2.3°N of Moon
14	23	Moon at Perigee: 366052 km
15	05	Mercury at Greatest Elong: 19.3°W
18	15:27	LAST QUARTER
19	12	Saturn at Opposition
21	18	Mars 4.1°S of Moon
25	23:13	NEW MOON
28	04	Jupiter at Opposition
29	19	Venus 2.0°S of Moon
Dec 1	00	Moon at Apogee: 405274 km
4	04:01	FIRST QUARTER
9	17	Saturn 1.8°N of Moon
10	08	Jupiter 2.6°N of Moon
11	09:05	FULL MOON
12	22	Moon at Perigee: 360601 km
18	00:42	LAST QUARTER
20	07	Mars 4.2°S of Moon
21	13:39	Winter Solstice
25	17:24	NEW MOON
25	17:37	Partial Solar Eclipse; mag=0.729
25	19	Mercury at Superior Conjunction
28	15	Moon at Apogee: 406191 km
29	22	Venus 1.8°N of Moon

Date	TDT (h:m)	Event
Jan 2	22:36	FIRST QUARTER
4	10	Earth at Perihelion
6	01	Saturn 2.0°N of Moon
6	14	Jupiter 3.0°N of Moon
9	20:21	Total Lunar Eclipse; mag=1.181
9	20:26	FULL MOON
10	09	Moon at Perigee: 357132 km
16	12:34	LAST QUARTER
17	08	Venus at Greatest Elong: 47.1°E
17	20	Mars 3.6°S of Moon
24	13:09	NEW MOON
24	19	Moon at Apogee: 406565 km
25	21	Neptune-Sun Conjunction
28	13	Mercury at Greatest Elong: 18.4°E
Feb 1	14:04	FIRST QUARTER
2	10	Saturn 2.1°N of Moon
2	22	Jupiter 3.1°N of Moon
7	22	Moon at Perigee: 356853 km
8	07:13	FULL MOON
9	20	Uranus-Sun Conjunction
13	00	Mercury at Inferior Conjunction
15	03:23	LAST QUARTER
15	10	Mars 2.7°S of Moon
20	22	Moon at Apogee: 406332 km
22	10	Venus at Perihelion
23	08:23	NEW MOON
Mar 1	18	Saturn 2.0°N of Moon
2	09	Jupiter 2.8°N of Moon
3	02:02	FIRST QUARTER
8	09	Moon at Perigee: 359779 km
9	17:24	FULL MOON
11	06	Mercury at Greatest Elong: 27.5°W
15	21	Mars 1.8°S of Moon
16	20:46	LAST QUARTER
20	11	Moon at Apogee: 405473 km
20	13:32	Vernal Equinox
22	18	Mercury 2.2°N of Moon
25	01:24	NEW MOON
29	04	Saturn 1.7°N of Moon
29	21	Jupiter 2.4°N of Moon
30	04	Venus at Inferior Conjunction
Apr 1	10:46	FIRST QUARTER
5	10	Moon at Perigee: 364815 km
8	03:23	FULL MOON
13	02	Mars 1.3°S of Moon
15	15:33	LAST QUARTER
17	06	Moon at Apogee: 404501 km
23	09	Mercury at Superior Conjunction
23	15:28	NEW MOON
25	16	Saturn 1.4°N of Moon
26	13	Jupiter 1.8°N of Moon
30	17:04	FIRST QUARTER
May 2	04	Moon at Perigee: 369426 km
7	13:54	FULL MOON
10	19	Mars 1.9°S of Moon
15	02	Moon at Apogee: 404141 km
15	10:14	LAST QUARTER
19	09	Venus 4.5°N of Moon
22	05	Mercury at Greatest Elong: 22.4°E
23	02:48	NEW MOON
24	19	Mercury 2.8°N of Moon
25	12	Saturn-Sun Conjunction
27	07	Moon at Perigee: 368036 km
29	22:07	FIRST QUARTER
Jun 6	01:41	FULL MOON
6	19	Mars 3.9°S of Moon
8	05	Venus at Greatest Elong: 45.8°W
11	20	Moon at Apogee: 404630 km
13	14	Mars at Opposition
14	03:33	LAST QUARTER
14	14	Jupiter-Sun Conjunction
14	19	Venus at Aphelion
16	13	Mercury at Inferior Conjunction
17	23	Venus 1.7°N of Moon
19	22	Saturn 0.9°N of Moon: Occn.
21	07:39	Summer Solstice
21	11:59	NEW MOON
21	12:04	Total Solar Eclipse; mag=1.047
23	17	Moon at Perigee: 363135 km
28	03:20	FIRST QUARTER

Date	TDT (h:m)	Event
Jul 4	15	Earth at Aphelion
5	14:58	Partial Lunar Eclipse; mag=0.487
5	15:05	FULL MOON
9	11	Moon at Apogee: 405565 km
9	17	Mercury at Greatest Elong: 21.1°W
13	18:50	LAST QUARTER
17	13	Saturn 0.6°N of Moon: Occn.
17	18	Venus 0.3°S of Moon: Occn.
19	00	Jupiter 0.2°N of Moon: Occn.
20	19:46	NEW MOON
21	21	Moon at Perigee: 359027 km
27	10:11	FIRST QUARTER
30	04	Neptune at Opposition
Aug 4	05:57	FULL MOON
5	21	Moon at Apogee: 406268 km
5	22	Mercury at Superior Conjunction
12	07:57	LAST QUARTER
14	03	Saturn 0.2°N of Moon: Occn.
15	20	Jupiter 0.4°S of Moon: Occn.
16	00	Uranus at Opposition
16	13	Venus 1.9°S of Moon
19	02:56	NEW MOON
19	06	Moon at Perigee: 357159 km
25	20:00	FIRST QUARTER
Sep 1	23	Moon at Apogee: 406332 km
2	21:45	FULL MOON
10	13	Saturn 0.2°S of Moon: Occn.
10	19:02	LAST QUARTER
12	12	Jupiter 1.0°S of Moon: Occn.
15	07	Venus 3.3°S of Moon
16	16	Moon at Perigee: 358128 km
17	10:28	NEW MOON
18	22	Mercury at Greatest Elong: 26.5°E
22	23:06	Autumnal Equinox
24	09:37	FIRST QUARTER
25	01	Mars 2.4°S of Moon
29	06	Moon at Apogee: 405791 km
Oct 2	13:51	FULL MOON
5	03	Venus at Perihelion
7	19	Saturn 0.5°S of Moon: Occn.
10	00	Jupiter 1.4°S of Moon
10	04:21	LAST QUARTER
12	13	Mars at Perihelion
14	02	Mercury at Inferior Conjunction
14	23	Moon at Perigee: 361864 km
15	02	Venus 3.8°S of Moon
16	19:24	NEW MOON
23	20	Mars 0.1°N of Moon: Occn.
24	03:03	FIRST QUARTER
26	20	Moon at Apogee: 404937 km
29	16	Mercury at Greatest Elong: 18.6°W
Nov 1	05:43	FULL MOON
3	23	Saturn 0.6°S of Moon: Occn.
6	07	Jupiter 1.7°S of Moon
8	12:22	LAST QUARTER
11	18	Moon at Perigee: 367259 km
15	06:41	NEW MOON
21	19	Mars 2.5°N of Moon
22	23:23	FIRST QUARTER
23	16	Moon at Apogee: 404396 km
30	20:51	FULL MOON
Dec 1	02	Saturn 0.5°S of Moon: Occn.
3	11	Jupiter 1.6°S of Moon
3	14	Saturn at Opposition
4	21	Mercury at Superior Conjunction
6	23	Moon at Perigee: 370114 km
7	19:52	LAST QUARTER
14	20:49	NEW MOON
14	20:55	Annular Solar Eclipse; mag=0.964
20	20	Mars 4.4°N of Moon
21	13	Moon at Apogee: 404634 km
21	19:23	Winter Solstice
22	20:57	FIRST QUARTER
28	08	Saturn 0.2°S of Moon: Occn.
30	10:29	Pen. Lunar Eclipse; mag=0.880
30	10:42	FULL MOON
30	14	Jupiter 1.2°S of Moon: Occn.

Date	TDI (h:m)	Event
Jan 1	06	Jupiter at Opposition
2	07	Moon at Perigee: 365412 km
2	10	Earth at Perihelion
6	03:56	LAST QUARTER
12	00	Mercury at Greatest Elong: 19.0°E
13	13:31	NEW MOON
14	11	Venus at Superior Conjunction
18	09	Moon at Apogee: 405503 km
21	17:45	FIRST QUARTER
24	16	Saturn 0.1°S of Moon: Occn.
25	12	Venus at Aphelion
26	19	Jupiter 0.9°S of Moon: Occn.
27	19	Mercury at Inferior Conjunction
28	07	Neptune-Sun Conjunction
28	22:52	FULL MOON
30	09	Moon at Perigee: 359997 km
Feb 4	13:35	LAST QUARTER
12	07:43	NEW MOON
14	01	Uranus-Sun Conjunction
14	22	Moon at Apogee: 406361 km
20	11:58	FIRST QUARTER
21	00	Saturn 0.2°S of Moon: Occn.
21	16	Mercury at Greatest Elong: 26.6°W
23	02	Jupiter 0.9°S of Moon: Occn.
27	09:18	FULL MOON
27	20	Moon at Perigee: 356898 km
Mar 6	01:27	LAST QUARTER
12	01	Mercury 2.7°N of Moon
14	01	Moon at Apogee: 406705 km
14	02:05	NEW MOON
18	01	Mars 3.9°N of Moon
20	10	Saturn 0.5°S of Moon: Occn.
20	19:17	Vernal Equinox
22	02:24	FIRST QUARTER
22	12	Jupiter 1.1°S of Moon: Occn.
28	08	Moon at Perigee: 357012 km
28	18:26	FULL MOON
Apr 4	15:32	LAST QUARTER
7	09	Mercury at Superior Conjunction
10	06	Moon at Apogee: 406409 km
12	19:23	NEW MOON
14	17	Venus 3.0°N of Moon
15	23	Mars 2.3°N of Moon
16	20	Saturn 0.8°S of Moon: Occn.
18	23	Jupiter 1.6°S of Moon
20	12:46	FIRST QUARTER
25	16	Moon at Perigee: 360088 km
27	03:01	FULL MOON
May 4	04	Mercury at Greatest Elong: 21.0°E
4	07:18	LAST QUARTER
7	19	Moon at Apogee: 405483 km
12	10:47	NEW MOON
14	08	Saturn 1.1°S of Moon: Occn.
14	19	Mars 0.6°N of Moon: Occn.
14	23	Venus 0.8°N of Moon: Occn.
16	12	Jupiter 2.1°S of Moon
17	20	Venus at Perihelion
19	19:43	FIRST QUARTER
23	16	Moon at Perigee: 364985 km
26	11:52	FULL MOON
26	12:09	Pen. Lunar Eclipse; mag=0.686
27	07	Mercury at Inferior Conjunction
Jun 3	00:08	LAST QUARTER
4	13	Moon at Apogee: 404524 km
9	11	Saturn-Sun Conjunction
10	23:46	Annular Solar Eclipse; mag=0.992
10	23:48	NEW MOON
13	04	Jupiter 2.5°S of Moon
13	21	Venus 1.5°S of Moon
18	00:33	FIRST QUARTER
19	07	Moon at Perigee: 369308 km
21	13:26	Summer Solstice
21	14	Mercury at Greatest Elong: 22.7°W
24	21:29	Pen. Lunar Eclipse; mag=0.199
24	21:43	FULL MOON

Date	TDI (h:m)	Event
Jul 2	08	Moon at Apogee: 404211 km
2	17:22	LAST QUARTER
6	08	Earth at Aphelion
8	13	Saturn 1.7°S of Moon
10	10:27	NEW MOON
13	12	Venus 3.9°S of Moon
14	13	Moon at Perigee: 367853 km
17	04:54	FIRST QUARTER
20	02	Jupiter-Sun Conjunction
21	02	Mercury at Superior Conjunction
24	09:08	FULL MOON
30	02	Moon at Apogee: 404742 km
Aug 1	10:25	LAST QUARTER
1	17	Neptune at Opposition
5	04	Saturn 2.1°S of Moon
8	19:16	NEW MOON
10	22	Mars-Sun Conjunction
11	00	Moon at Perigee: 362928 km
11	22	Venus 6.1°S of Moon
15	10:20	FIRST QUARTER
20	10	Uranus at Opposition
22	13	Venus at Greatest Elong: 46.0°E
22	22:30	FULL MOON
26	18	Moon at Apogee: 405694 km
31	02:33	LAST QUARTER
Sep 1	10	Mercury at Greatest Elong: 27.2°E
1	17	Saturn 2.5°S of Moon
4	13	Jupiter 3.7°S of Moon
7	03:11	NEW MOON
8	03	Moon at Perigee: 358745 km
13	18:14	FIRST QUARTER
21	01	Mars at Aphelion
21	14:00	FULL MOON
23	03	Moon at Apogee: 406351 km
23	04:57	Autumnal Equinox
27	18	Mercury at Inferior Conjunction
29	03	Saturn 2.9°S of Moon
29	17:04	LAST QUARTER
Oct 2	07	Jupiter 4.1°S of Moon
6	11:18	NEW MOON
6	13	Moon at Perigee: 356920 km
13	05:35	FIRST QUARTER
13	07	Mercury at Greatest Elong: 18.1°W
20	05	Moon at Apogee: 406358 km
21	07:22	FULL MOON
26	09	Saturn 3.1°S of Moon
29	05:29	LAST QUARTER
29	22	Jupiter 4.4°S of Moon
31	12	Venus at Inferior Conjunction
Nov 2	18	Mars 3.8°S of Moon
4	01	Moon at Perigee: 358154 km
4	20:36	NEW MOON
11	20:51	FIRST QUARTER
14	05	Mercury at Superior Conjunction
16	12	Moon at Apogee: 405795 km
20	01:36	FULL MOON
20	01:45	Pen. Lunar Eclipse; mag=0.857
22	12	Saturn 3.1°S of Moon
26	07	Jupiter 4.5°S of Moon
27	15:48	LAST QUARTER
Dec 1	10	Mars 2.7°S of Moon
1	13	Venus 2.1°S of Moon
2	09	Moon at Perigee: 362294 km
4	07:33	Total Solar Eclipse; mag=1.021
4	07:36	NEW MOON
11	15:45	FIRST QUARTER
14	04	Moon at Apogee: 404912 km
17	18	Saturn at Opposition
19	15	Saturn 2.8°S of Moon
19	19:12	FULL MOON
22	01:16	Winter Solstice
23	12	Jupiter 4.3°S of Moon
26	06	Mercury at Greatest Elong: 19.9°E
27	00:33	LAST QUARTER
28	13	Venus at Perihelion
30	01	Mars 1.2°S of Moon: Occn.
30	01	Moon at Perigee: 367904 km
30	09	Venus 2.2°N of Moon

Date	TDT (h:m)	Event
Jan 2	20:25	NEW MOON
4	02	Earth at Perihelion
10	13:11	FIRST QUARTER
11	01	Moon at Apogee: 404343 km
11	01	Venus at Greatest Elong: 47.0°W
11	20	Mercury at Inferior Conjunction
15	20	Saturn 2.6°S of Moon
18	10:50	FULL MOON
19	15	Jupiter 4.0°S of Moon
23	23	Moon at Perigee: 369912 km
25	08:35	LAST QUARTER
27	15	Mars 0.4°N of Moon: Occn.
28	19	Venus 4.3°N of Moon
30	10	Mercury 4.8°N of Moon
30	17	Neptune-Sun Conjunction
Feb 1	10:51	NEW MOON
2	09	Jupiter at Opposition
4	01	Mercury at Greatest Elong: 25.4°W
7	22	Moon at Apogee: 404551 km
9	11:08	FIRST QUARTER
12	03	Saturn 2.6°S of Moon
15	18	Jupiter 3.8°S of Moon
16	23:53	FULL MOON
18	06	Uranus-Sun Conjunction
19	16	Moon at Perigee: 364844 km
23	16:47	LAST QUARTER
25	05	Mars 1.9°N of Moon
27	11	Venus 5.1°N of Moon
Mar 3	02:37	NEW MOON
7	17	Moon at Apogee: 405383 km
11	07:14	FIRST QUARTER
11	12	Saturn 2.8°S of Moon
15	00	Jupiter 3.9°S of Moon
18	10:36	FULL MOON
19	19	Moon at Perigee: 359818 km
21	01:02	Vernal Equinox
21	23	Mercury at Superior Conjunction
25	01:52	LAST QUARTER
25	18	Mars 2.9°N of Moon
29	10	Venus 4.7°N of Moon
Apr 1	19:21	NEW MOON
4	05	Moon at Apogee: 406211 km
7	22	Saturn 3.1°S of Moon
9	23:42	FIRST QUARTER
11	08	Jupiter 4.1°S of Moon
16	14	Mercury at Greatest Elong: 19.8°E
16	19:37	FULL MOON
17	05	Moon at Perigee: 357158 km
19	21	Venus at Aphelion
23	07	Mars 3.4°N of Moon
23	12:19	LAST QUARTER
28	17	Venus 2.7°N of Moon
May 1	08	Moon at Apogee: 406530 km
1	12:16	NEW MOON
5	09	Saturn 3.3°S of Moon
7	07	Mercury at Inferior Conjunction
8	18	Jupiter 4.3°S of Moon
9	11:57	FIRST QUARTER
15	16	Moon at Perigee: 357449 km
16	03:37	FULL MOON
16	03:43	Total Lunar Eclipse; mag=1.129
21	20	Mars 3.0°N of Moon
23	00:31	LAST QUARTER
28	13	Moon at Apogee: 406171 km
29	03	Mercury 2.5°S of Moon
29	04	Venus 0.1°S of Moon: Occn.
31	04:10	Non-Central Annular Solar Eclipse mag=0.937
31	04:21	NEW MOON
Jun 3	06	Mercury at Greatest Elong: 24.4°W
5	06	Jupiter 4.4°S of Moon
7	20:33	FIRST QUARTER
12	23	Moon at Perigee: 360427 km
14	11:16	FULL MOON
19	07	Mars 1.7°N of Moon
21	14:47	LAST QUARTER
21	19:12	Summer Solstice
24	14	Saturn-Sun Conjunction
25	02	Moon at Apogee: 405233 km
29	18:40	NEW MOON

Date	TDT (h:m)	Event
Jul 2	21	Jupiter 4.5°S of Moon
4	02	Earth at Aphelion
5	10	Mercury at Superior Conjunction
7	02:38	FIRST QUARTER
9	15	Saturn at Perihelion
10	22	Moon at Perigee: 365143 km
13	19:22	FULL MOON
17	08	Mars 0.3°S of Moon: Occn.
21	07:04	LAST QUARTER
22	20	Moon at Apogee: 404330 km
27	00	Saturn 4.0°S of Moon
29	06:53	NEW MOON
31	01	Mercury 4.8°S of Moon
Aug 4	06	Neptune at Opposition
5	07:32	FIRST QUARTER
6	14	Moon at Perigee: 369437 km
10	06	Venus at Perihelion
12	04:48	FULL MOON
13	17	Mars 1.9°S of Moon
14	21	Mercury at Greatest Elong: 27.4°E
18	18	Venus at Superior Conjunction
19	14	Moon at Apogee: 404102 km
20	00:52	LAST QUARTER
22	10	Jupiter-Sun Conjunction
23	14	Saturn 4.3°S of Moon
24	19	Uranus at Opposition
27	17:27	NEW MOON
28	16	Mars at Opposition
30	13	Mars at Perihelion
31	19	Moon at Perigee: 367929 km
Sep 3	12:36	FIRST QUARTER
9	13	Mars 1.2°S of Moon
10	16:36	FULL MOON
11	02	Mercury at Inferior Conjunction
16	09	Moon at Apogee: 404713 km
18	19:06	LAST QUARTER
23	10:48	Autumnal Equinox
24	04	Jupiter 4.4°S of Moon
26	03:09	NEW MOON
27	00	Mercury at Greatest Elong: 17.9°W
28	06	Moon at Perigee: 362837 km
Oct 2	19:09	FIRST QUARTER
6	15	Mars 1.1°N of Moon: Occn.
10	07:28	FULL MOON
14	02	Moon at Apogee: 405692 km
18	12:34	LAST QUARTER
21	23	Jupiter 4.4°S of Moon
25	10	Mercury at Superior Conjunction
25	12:51	NEW MOON
26	12	Moon at Perigee: 358549 km
26	20	Venus 0.1°N of Moon: Occn.
Nov 1	04:22	FIRST QUARTER
3	09	Mars 3.1°N of Moon
9	01:15	FULL MOON
9	01:20	Total Lunar Eclipse; mag=1.018
10	12	Moon at Apogee: 406298 km
17	04:17	LAST QUARTER
18	16	Jupiter 4.2°S of Moon
23	22:48	Total Solar Eclipse; mag=1.037
23	23:00	NEW MOON
23	23	Moon at Perigee: 356812 km
25	18	Venus 2.0°N of Moon
30	17:12	FIRST QUARTER
Dec 1	16	Mars 4.1°N of Moon
7	12	Moon at Apogee: 406281 km
8	20:39	FULL MOON
9	06	Mercury at Greatest Elong: 20.9°E
16	04	Jupiter 3.8°S of Moon
16	17:43	LAST QUARTER
22	07:05	Winter Solstice
22	12	Moon at Perigee: 358342 km
23	09:45	NEW MOON
25	16	Venus 3.2°N of Moon
27	01	Mercury at Inferior Conjunction
30	07	Mars 3.8°N of Moon
30	10:01	FIRST QUARTER
31	21	Saturn at Opposition

Date	TDT (h:m)	Event
Jan 3	20	Moon at Apogee: 405707 km
4	21	Earth at Perihelion
7	15:43	FULL MOON
12	11	Jupiter 3.4°S of Moon
15	04:45	LAST QUARTER
17	09	Mercury at Greatest Elong: 23.9°W
19	19	Moon at Perigee: 362768 km
20	03	Mercury 4.7°N of Moon
21	21:08	NEW MOON
24	16	Venus 3.6°N of Moon
28	03	Mars 2.6°N of Moon
29	06:03	FIRST QUARTER
31	14	Moon at Apogee: 404807 km
Feb 2	03	Neptune-Sun Conjunction
3	04	Saturn 4.5°S of Moon
6	08:50	FULL MOON
8	14	Jupiter 3.2°S of Moon
13	13:38	LAST QUARTER
16	08	Moon at Perigee: 368320 km
20	09:21	NEW MOON
22	10	Uranus-Sun Conjunction
23	20	Venus 3.0°N of Moon
26	02	Mars 0.9°N of Moon: Occn.
28	03:27	FIRST QUARTER
28	11	Moon at Apogee: 404259 km
Mar 4	01	Mercury at Superior Conjunction
4	05	Jupiter at Opposition
6	16	Jupiter 3.2°S of Moon
6	23:17	FULL MOON
12	04	Moon at Perigee: 369511 km
13	21:00	LAST QUARTER
20	06:50	Vernal Equinox
20	22:45	NEW MOON
21	23	Venus at Perihelion
24	21	Venus 2.2°N of Moon
26	00	Mars 0.8°S of Moon: Occn.
27	07	Moon at Apogee: 404520 km
28	23:53	FIRST QUARTER
29	12	Mercury at Greatest Elong: 18.9°E
29	15	Venus at Greatest Elong: 46.0°E
Apr 2	19	Jupiter 3.5°S of Moon
5	11:05	FULL MOON
8	02	Moon at Perigee: 364548 km
12	03:47	LAST QUARTER
17	01	Mercury at Inferior Conjunction
19	13:24	NEW MOON
19	13:39	Partial Solar Eclipse; mag=0.741
23	10	Venus 1.5°N of Moon
23	21	Mars 2.2°S of Moon
24	00	Moon at Apogee: 405403 km
27	17:39	FIRST QUARTER
30	02	Jupiter 3.7°S of Moon
May 4	20:30	Total Lunar Eclipse; mag=1.296
4	20:36	FULL MOON
6	04	Moon at Perigee: 359812 km
11	11:07	LAST QUARTER
14	21	Mercury at Greatest Elong: 26.0°W
16	23	Mercury 2.6°S of Moon
19	04:54	NEW MOON
21	12	Moon at Apogee: 406262 km
21	12	Venus 0.3°S of Moon: Occn.
22	16	Mars 3.2°S of Moon
27	08:02	FIRST QUARTER
27	12	Jupiter 3.7°S of Moon
Jun 3	04:21	FULL MOON
3	13	Moon at Perigee: 357249 km
8	09	Venus at Inferior Conjunction
9	20:07	LAST QUARTER
17	16	Moon at Apogee: 406575 km
17	20:29	NEW MOON
18	21	Mercury at Superior Conjunction
20	09	Mars 3.8°S of Moon
21	00:58	Summer Solstice
23	23	Jupiter 3.4°S of Moon
25	19:11	FIRST QUARTER

Date	TDT (h:m)	Event
Jul 1	23	Moon at Perigee: 357450 km
2	11:10	FULL MOON
5	06	Earth at Aphelion
8	17	Saturn-Sun Conjunction
9	07:39	LAST QUARTER
12	07	Venus at Aphelion
14	21	Moon at Apogee: 406192 km
17	11:25	NEW MOON
21	13	Jupiter 3.1°S of Moon
25	03:38	FIRST QUARTER
27	03	Mercury at Greatest Elong: 27.1°E
30	06	Moon at Perigee: 360326 km
31	18:06	FULL MOON
Aug 5	20	Neptune at Opposition
7	22:06	LAST QUARTER
8	00	Mars at Aphelion
11	10	Moon at Apogee: 405291 km
16	01:24	NEW MOON
17	18	Venus at Greatest Elong: 45.8°W
18	05	Jupiter 2.6°S of Moon
23	10:10	FIRST QUARTER
23	21	Mercury at Inferior Conjunction
27	06	Moon at Perigee: 365106 km
28	03	Uranus at Opposition
30	02:23	FULL MOON
Sep 6	15:13	LAST QUARTER
8	03	Moon at Apogee: 404464 km
9	14	Mercury at Greatest Elong: 18.0°W
14	14:29	NEW MOON
15	12	Mars-Sun Conjunction
21	15:51	FIRST QUARTER
22	00	Jupiter-Sun Conjunction
22	16:31	Autumnal Equinox
22	21	Moon at Perigee: 369600 km
28	13:09	FULL MOON
Oct 5	18	Mercury at Superior Conjunction
5	22	Moon at Apogee: 404328 km
6	10:12	LAST QUARTER
10	19	Venus 3.9°S of Moon
14	02:48	NEW MOON
14	02:57	Partial Solar Eclipse; mag=0.925
18	00	Moon at Perigee: 367758 km
20	21:56	FIRST QUARTER
28	03:05	Total Lunar Eclipse; mag=1.308
28	03:08	FULL MOON
Nov 1	15	Venus at Perihelion
2	18	Moon at Apogee: 404999 km
5	05:53	LAST QUARTER
9	16	Jupiter 1.0°S of Moon: Occn.
10	02	Venus 0.2°N of Moon: Occn.
12	14:27	NEW MOON
14	03	Mercury 0.9°N of Moon: Occn.
14	14	Moon at Perigee: 362313 km
19	05:49	FIRST QUARTER
21	01	Mercury at Greatest Elong: 22.2°E
26	20:08	FULL MOON
30	11	Moon at Apogee: 405953 km
Dec 5	00:51	LAST QUARTER
7	11	Jupiter 0.4°S of Moon: Occn.
10	00	Mars 2.1°N of Moon
10	05	Venus 3.5°N of Moon
10	08	Mercury at Inferior Conjunction
12	01:29	NEW MOON
12	22	Moon at Perigee: 357986 km
18	16:41	FIRST QUARTER
21	12:43	Winter Solstice
26	15:07	FULL MOON
27	19	Moon at Apogee: 406488 km
29	20	Mercury at Greatest Elong: 22.4°W

Date	TDT (h:m)	Event
Jan 1	22	Earth at Perihelion
3	17:43	LAST QUARTER
4	02	Jupiter 0.3°N of Moon: Occn.
7	19	Mars 3.4°N of Moon
9	02	Mercury 4.8°N of Moon
9	03	Venus 4.8°N of Moon
10	10	Moon at Perigee: 356572 km
10	12:04	NEW MOON
13	23	Saturn at Opposition
17	07:00	FIRST QUARTER
23	19	Moon at Apogee: 406444 km
25	10:33	FULL MOON
31	11	Jupiter 0.9°N of Moon: Occn.
Feb 2	07:25	LAST QUARTER
3	13	Neptune-Sun Conjunction
5	13	Mars 4.3°N of Moon
7	22	Moon at Perigee: 358564 km
8	22:30	NEW MOON
14	11	Mercury at Superior Conjunction
16	00:20	FIRST QUARTER
20	05	Moon at Apogee: 405806 km
22	00	Venus at Aphelion
24	04:55	FULL MOON
25	15	Uranus-Sun Conjunction
27	15	Jupiter 1.2°N of Moon: Occn.
Mar 3	17:37	LAST QUARTER
6	06	Mars 4.5°N of Moon
8	04	Moon at Perigee: 363235 km
10	09:13	NEW MOON
12	18	Mercury at Greatest Elong: 18.3°E
17	19:23	FIRST QUARTER
19	23	Moon at Apogee: 404848 km
20	12:35	Vernal Equinox
25	21:01	FULL MOON
26	16	Jupiter 1.0°N of Moon: Occn.
29	16	Mercury at Inferior Conjunction
31	03	Venus at Superior Conjunction
Apr 2	00:54	LAST QUARTER
3	15	Jupiter at Opposition
3	22	Mars 4.1°N of Moon
4	11	Moon at Perigee: 368492 km
8	20:35	NEW MOON
8	20:43	Ann/Total Solar Eclipse mag=1.005
10	00	Jupiter at Aphelion
16	14:41	FIRST QUARTER
16	19	Moon at Apogee: 404304 km
22	18	Jupiter 0.6°N of Moon: Occn.
24	09:58	Pen. Lunar Eclipse; mag=0.849
24	10:09	FULL MOON
26	16	Mercury at Greatest Elong: 27.2°W
29	10	Moon at Perigee: 369029 km
May 1	06:30	LAST QUARTER
2	15	Mars 2.7°N of Moon
6	10	Mercury 3.1°S of Moon
8	08:49	NEW MOON
14	14	Moon at Apogee: 404601 km
16	08:59	FIRST QUARTER
19	22	Jupiter 0.4°N of Moon: Occn.
23	20:21	FULL MOON
26	11	Moon at Perigee: 364241 km
30	11:54	LAST QUARTER
31	09	Mars 0.5°N of Moon: Occn.
Jun 3	09	Mercury at Superior Conjunction
6	21:58	NEW MOON
8	12	Venus 3.8°S of Moon
11	06	Moon at Apogee: 405506 km
14	08	Venus at Perihelion
15	01:23	FIRST QUARTER
16	07	Jupiter 0.4°N of Moon: Occn.
21	06:47	Summer Solstice
22	04:16	FULL MOON
23	12	Moon at Perigee: 359675 km
28	18:29	LAST QUARTER
29	04	Mars 2.1°S of Moon

Date	TDT (h:m)	Event
Jul 5	07	Earth at Aphelion
6	12:05	NEW MOON
8	18	Moon at Apogee: 406363 km
8	19	Venus 3.1°S of Moon
9	03	Mercury at Greatest Elong: 26.3°E
13	18	Jupiter 0.8°N of Moon: Occn.
14	15:19	FIRST QUARTER
17	12	Mars at Perihelion
21	11:03	FULL MOON
21	20	Moon at Perigee: 357160 km
23	17	Saturn-Sun Conjunction
27	20	Mars 4.3°S of Moon
28	03:22	LAST QUARTER
Aug 4	22	Moon at Apogee: 406631 km
5	03:06	NEW MOON
6	00	Mercury at Inferior Conjunction
8	04	Venus 1.2°S of Moon
8	09	Neptune at Opposition
10	08	Jupiter 1.3°N of Moon
13	02:37	FIRST QUARTER
19	06	Moon at Perigee: 357396 km
19	17:55	FULL MOON
23	23	Mercury at Greatest Elong: 18.4°W
26	15:18	LAST QUARTER
Sep 1	03	Moon at Apogee: 406210 km
1	12	Uranus at Opposition
3	18:46	NEW MOON
7	00	Jupiter 1.8°N of Moon
7	09	Venus 0.6°N of Moon: Occn.
11	11:35	FIRST QUARTER
16	14	Moon at Perigee: 360406 km
18	02:02	FULL MOON
18	03	Mercury at Superior Conjunction
22	22:24	Autumnal Equinox
25	06:38	LAST QUARTER
28	15	Moon at Apogee: 405307 km
Oct 3	10:28	NEW MOON
3	10:28	Annular Solar Eclipse; mag=0.956
4	17	Venus at Aphelion
7	06	Venus 1.4°N of Moon
10	19:01	FIRST QUARTER
14	14	Moon at Perigee: 365450 km
17	12:02	Partial Lunar Eclipse; mag=0.061
17	12:14	FULL MOON
22	13	Jupiter-Sun Conjunction
25	01:13	LAST QUARTER
25	17	Saturn 4.5°S of Moon
26	10	Moon at Apogee: 404493 km
Nov 2	01:24	NEW MOON
3	16	Mercury at Greatest Elong: 23.5°E
3	19	Venus at Greatest Elong: 47.1°E
3	23	Mercury 1.3°N of Moon
5	19	Venus 1.4°N of Moon
7	08	Mars at Opposition
9	01:58	FIRST QUARTER
10	00	Moon at Perigee: 370014 km
15	06	Mars 2.7°S of Moon
16	00:57	FULL MOON
22	03	Saturn 4.2°S of Moon
23	06	Moon at Apogee: 404371 km
23	22:09	LAST QUARTER
24	16	Mercury at Inferior Conjunction
29	08	Jupiter 3.5°N of Moon
Dec 1	15:00	NEW MOON
4	18	Venus 2.4°N of Moon
5	05	Moon at Perigee: 367365 km
8	09:39	FIRST QUARTER
12	05	Mars 1.3°S of Moon
12	13	Mercury at Greatest Elong: 21.1°W
15	16:16	FULL MOON
19	09	Saturn 3.9°S of Moon
21	03	Moon at Apogee: 405014 km
21	18:36	Winter Solstice
23	19:35	LAST QUARTER
27	04	Jupiter 4.1°N of Moon
31	03:12	NEW MOON

Date	TDT (h:m)	Event	Date	TDT (h:m)	Event
Jan 1	23	Moon at Perigee: 361750 km	Jul 1	20	Moon at Apogee: 404448 km
4	10	Earth at Perihelion	3	16:36	FIRST QUARTER
6	19:00	FIRST QUARTER	4	00	Earth at Aphelion
8	20	Mars 1.4°S of Moon	11	03:04	FULL MOON
14	00	Venus at Inferior Conjunction	13	18	Moon at Perigee: 364287 km
14	09:48	FULL MOON	17	19:12	LAST QUARTER
15	13	Saturn 3.8°S of Moon	18	07	Mercury at Inferior Conjunction
17	19	Moon at Apogee: 405886 km	23	00	Venus 5.6°S of Moon
22	15:16	LAST QUARTER	25	04:32	NEW MOON
23	20	Jupiter 4.7°N of Moon	27	17	Mars 1.1°S of Moon: Occn.
25	01	Venus at Perihelion	29	13	Moon at Apogee: 405405 km
26	22	Mercury at Superior Conjunction	Aug 2	08:46	FIRST QUARTER
27	23	Saturn at Opposition	7	00	Mercury at Greatest Elong: 19.2°W
29	14:16	NEW MOON	7	12	Saturn-Sun Conjunction
30	08	Moon at Perigee: 357781 km	9	10:56	FULL MOON
Feb 5	06:32	FIRST QUARTER	10	18	Moon at Perigee: 359755 km
5	22	Mars 2.2°S of Moon	10	22	Neptune at Opposition
5	23	Neptune-Sun Conjunction	16	01:48	LAST QUARTER
11	15	Saturn 3.9°S of Moon	22	03	Venus 3.1°S of Moon
13	04:45	FULL MOON	23	19:11	NEW MOON
14	01	Moon at Apogee: 406362 km	26	01	Moon at Apogee: 406271 km
21	07:22	LAST QUARTER	31	22:57	FIRST QUARTER
24	05	Mercury at Greatest Elong: 18.1°E	Sep 1	05	Mercury at Superior Conjunction
27	20	Moon at Perigee: 356885 km	5	20	Uranus at Opposition
28	00:33	NEW MOON	6	18	Venus at Perihelion
Mar 1	19	Uranus-Sun Conjunction	7	18:44	FULL MOON
6	07	Mars 3.0°S of Moon	7	18:54	Partial Lunar Eclipse; mag=0.176
6	20:18	FIRST QUARTER	8	03	Moon at Perigee: 357175 km
10	18	Saturn 4.0°S of Moon	14	11:12	LAST QUARTER
12	03	Mercury at Inferior Conjunction	19	03	Saturn 2.4°S of Moon
13	02	Moon at Apogee: 406273 km	22	05	Moon at Apogee: 406500 km
14	23:36	FULL MOON	22	11:41	Annular Solar Eclipse; mag=0.935
14	23:47	Pen. Lunar Eclipse; mag=1.025	22	11:46	NEW MOON
20	18:27	Vernal Equinox	23	04:05	Autumnal Equinox
22	19:17	LAST QUARTER	30	11:05	FIRST QUARTER
25	08	Venus at Greatest Elong: 46.5°W	Oct 6	14	Moon at Perigee: 357410 km
25	23	Venus 5.9°N of Moon	7	03:14	FULL MOON
27	17	Mercury 2.4°N of Moon	14	00:23	LAST QUARTER
28	07	Moon at Perigee: 359170 km	16	14	Saturn 2.0°S of Moon
29	10:15	Total Solar Eclipse; mag=1.051	17	04	Mercury at Greatest Elong: 24.6°E
29	10:18	NEW MOON	19	10	Moon at Apogee: 406075 km
Apr 3	20	Mars 3.5°S of Moon	22	05:15	NEW MOON
5	12:02	FIRST QUARTER	23	06	Mars-Sun Conjunction
6	23	Saturn 4.0°S of Moon	24	08	Mercury 1.4°N of Moon
8	18	Mercury at Greatest Elong: 27.8°W	27	17	Venus at Superior Conjunction
9	13	Moon at Apogee: 405551 km	29	21:27	FIRST QUARTER
13	16:42	FULL MOON	Nov 4	00	Moon at Perigee: 360598 km
21	03:34	LAST QUARTER	5	12:59	FULL MOON
24	14	Venus 0.5°N of Moon: Occn.	8	21	Mercury at Inferior Conjunction
25	11	Moon at Perigee: 363737 km	12	17:45	LAST QUARTER
26	08	Mercury 4.0°S of Moon	13	01	Saturn 1.6°S of Moon
27	19:46	NEW MOON	15	23	Moon at Apogee: 405193 km
May 2	11	Mars 3.6°S of Moon	20	22:18	NEW MOON
4	09	Saturn 3.8°S of Moon	22	00	Jupiter-Sun Conjunction
4	15	Jupiter at Opposition	25	13	Mercury at Greatest Elong: 19.9°W
5	05:13	FIRST QUARTER	28	06:30	FIRST QUARTER
7	07	Moon at Apogee: 404572 km	Dec 2	00	Moon at Perigee: 365923 km
13	06:54	FULL MOON	5	00:25	FULL MOON
17	09	Venus at Aphelion	10	11	Saturn 1.2°S of Moon: Occn.
18	20	Mercury at Superior Conjunction	12	14:35	LAST QUARTER
20	09:25	LAST QUARTER	13	19	Moon at Apogee: 404418 km
22	16	Moon at Perigee: 368615 km	20	14:01	NEW MOON
24	09	Venus 4.3°S of Moon	22	00:23	Winter Solstice
27	05:28	NEW MOON	27	14:49	FIRST QUARTER
31	03	Mars 3.2°S of Moon	28	02	Moon at Perigee: 370321 km
31	21	Saturn 3.5°S of Moon			
Jun 3	23:05	FIRST QUARTER			
4	02	Moon at Apogee: 404080 km			
11	18:05	FULL MOON			
16	17	Moon at Perigee: 368926 km			
18	14:10	LAST QUARTER			
20	20	Mercury at Greatest Elong: 24.9°E			
21	12:27	Summer Solstice			
23	03	Venus 6.2°S of Moon			
25	16:07	NEW MOON			
26	00	Mars at Aphelion			
28	11	Saturn 3.2°S of Moon			
28	22	Mars 2.4°S of Moon			

Date	TDT (h:m)	Event	Date	TDT (h:m)	Event
Jan 3	13:58	FULL MOON	Jul 6	18	Earth at Aphelion
3 20		Earth at Perihelion	7 16:49		LAST QUARTER
6 18		Saturn 0.9°S of Moon: Occn.	9 22		Moon at Perigee: 368534 km
7 06		Mercury at Superior Conjunction	14 12:05		NEW MOON
10 16		Moon at Apogee: 404335 km	16 23		Saturn 0.0°N of Moon: Occn.
11 12:50		LAST QUARTER	17 10		Venus 2.7°S of Moon
17 02		Mars 4.5°N of Moon	20 15		Mercury at Greatest Elong: 20.3°W
19 04:01		NEW MOON	22 06:29		FIRST QUARTER
20 17		Venus 0.8°N of Moon: Occn.	22 09		Moon at Apogee: 404152 km
22 12		Moon at Perigee: 366929 km	30 00:50		FULL MOON
25 23:03		FIRST QUARTER	Aug 4 00		Moon at Perigee: 368892 km
Feb 2 05:46		FULL MOON	5 21:16		LAST QUARTER
2 23		Saturn 0.9°S of Moon: Occn.	9 19		Venus at Aphelion
7 13		Moon at Apogee: 404990 km	12 23:04		NEW MOON
7 18		Mercury at Greatest Elong: 18.2°E	13 11		Neptune at Opposition
8 10		Neptune-Sun Conjunction	15 20		Mercury at Superior Conjunction
10 09:59		LAST QUARTER	18 04		Venus at Inferior Conjunction
10 18		Saturn at Opposition	19 03		Moon at Apogee: 404621 km
15 01		Mars 3.6°N of Moon	20 23:54		FIRST QUARTER
17 16:15		NEW MOON	21 23		Saturn-Sun Conjunction
19 10		Moon at Perigee: 361440 km	28 10:37		Total Lunar Eclipse; mag=1.473
19 18		Venus 2.5°S of Moon	28 10:37		FULL MOON
23 05		Mercury at Inferior Conjunction	31 00		Moon at Perigee: 364174 km
24 07:57		FIRST QUARTER	Sep 4 02:32		LAST QUARTER
Mar 2 02		Saturn 1.1°S of Moon: Occn.	10 03		Uranus at Opposition
3 23:18		FULL MOON	11 12:34		Partial Solar Eclipse; mag=0.753
3 23:24		Total Lunar Eclipse; mag=1.230	11 12:45		NEW MOON
6 00		Uranus-Sun Conjunction	13 14		Mercury 2.5°N of Moon
7 04		Moon at Apogee: 405851 km	15 21		Moon at Apogee: 405645 km
12 04:01		LAST QUARTER	19 16:48		FIRST QUARTER
16 02		Mars 1.9°N of Moon	23 09:52		Autumnal Equinox
17 03		Mercury 1.4°N of Moon	26 19:47		FULL MOON
19 02:31		Partial Solar Eclipse; mag=0.872	28 02		Moon at Perigee: 359420 km
19 02:44		NEW MOON	29 16		Mercury at Greatest Elong: 26.0°E
19 19		Moon at Perigee: 357816 km	Oct 2 20		Mars 4.7°S of Moon
21 00:09		Vernal Equinox	3 10:08		LAST QUARTER
21 15		Venus 4.0°S of Moon	7 03		Venus 3.5°S of Moon
22 02		Mercury at Greatest Elong: 27.7°W	7 16		Saturn 1.3°N of Moon
25 18:18		FIRST QUARTER	11 05:02		NEW MOON
29 04		Saturn 1.2°S of Moon	13 10		Moon at Apogee: 406491 km
Apr 2 17:16		FULL MOON	19 08:33		FIRST QUARTER
3 09		Moon at Apogee: 406327 km	24 00		Mercury at Inferior Conjunction
10 18:08		LAST QUARTER	26 04:53		FULL MOON
14 02		Mars 0.5°S of Moon: Occn.	26 12		Moon at Perigee: 356755 km
17 06		Moon at Perigee: 357138 km	28 16		Venus at Greatest Elong: 46.5°W
17 11:38		NEW MOON	30 19		Mars 3.2°S of Moon
19 11		Venus at Perihelion	Nov 1 21:23		LAST QUARTER
20 08		Venus 3.3°S of Moon	4 03		Saturn 1.8°N of Moon
24 06:37		FIRST QUARTER	5 20		Venus 3.1°N of Moon
25 10		Saturn 1.1°S of Moon: Occn.	8 20		Mercury at Greatest Elong: 19.0°W
30 11		Moon at Apogee: 406209 km	9 13		Moon at Apogee: 406671 km
May 2 10:11		FULL MOON	9 23:04		NEW MOON
3 04		Mercury at Superior Conjunction	17 22:33		FIRST QUARTER
10 04:27		LAST QUARTER	24 00		Moon at Perigee: 357196 km
13 01		Mars 3.1°S of Moon	24 14:31		FULL MOON
15 15		Moon at Perigee: 359393 km	27 06		Mars 1.7°S of Moon
16 19:29		NEW MOON	30 03		Venus at Perihelion
20 01		Venus 1.7°S of Moon	Dec 1 12:50		LAST QUARTER
22 19		Saturn 0.8°S of Moon: Occn.	1 13		Saturn 2.4°N of Moon
23 21:03		FIRST QUARTER	6 17		Moon at Apogee: 406235 km
27 22		Moon at Apogee: 405458 km	9 17:41		NEW MOON
Jun 1 01:05		FULL MOON	17 10:18		FIRST QUARTER
2 10		Mercury at Greatest Elong: 23.4°E	17 15		Mercury at Superior Conjunction
4 12		Mars at Perihelion	22 06:09		Winter Solstice
6 00		Jupiter at Opposition	22 10		Moon at Perigee: 360817 km
8 11:40		LAST QUARTER	23 07		Jupiter-Sun Conjunction
9 04		Venus at Greatest Elong: 45.4°E	24 01:17		FULL MOON
12 17		Moon at Perigee: 363778 km	24 03		Mars 0.9°S of Moon: Occn.
15 03:15		NEW MOON	24 20		Mars at Opposition
18 15		Venus 0.6°S of Moon: Occn.	28 22		Saturn 2.8°N of Moon
19 08		Saturn 0.4°S of Moon: Occn.	31 07:57		LAST QUARTER
21 18:07		Summer Solstice			
22 13:15		FIRST QUARTER			
24 14		Moon at Apogee: 404540 km			
28 18		Mercury at Inferior Conjunction			
30 13:50		FULL MOON			

Date	TD (h:m)	Event	Date	TD (h:m)	Event
Jan 3	04	Earth at Perihelion	Jul 1	18	Mercury at Greatest Elong: 21.8°W
3	08	Moon at Apogee: 405328 km	1	21	Moon at Perigee: 359513 km
8	11:38	NEW MOON	3	02:20	NEW MOON
15	19:47	FIRST QUARTER	4	05	Earth at Aphelion
19	09	Moon at Perigee: 366436 km	6	18	Mars 2.6°N of Moon
20	00	Mars 1.1°S of Moon: Occn.	6	22	Saturn 3.5°N of Moon
22	05	Mercury at Greatest Elong: 18.6°E	9	09	Jupiter at Opposition
22	13:35	FULL MOON	10	04:33	FIRST QUARTER
25	06	Saturn 3.0°N of Moon	11	20	Venus at Perihelion
30	05:07	LAST QUARTER	14	04	Moon at Apogee: 405452 km
31	04	Moon at Apogee: 404532 km	17	12	Jupiter 2.6°N of Moon
Feb 4	06	Jupiter 4.0°N of Moon	18	08:00	FULL MOON
4	12	Venus 4.3°N of Moon	25	18:41	LAST QUARTER
6	18	Mercury at Inferior Conjunction	29	20	Mercury at Superior Conjunction
7	03:45	NEW MOON	29	23	Moon at Perigee: 363887 km
7	03:56	Annular Solar Eclipse; mag=0.960	Aug 1	10:14	NEW MOON
10	20	Neptune-Sun Conjunction	1	10:25	Total Solar Eclipse; mag=1.036
14	01	Moon at Perigee: 370216 km	2	15	Venus 2.3°N of Moon
14	03:36	FIRST QUARTER	3	13	Saturn 3.8°N of Moon
16	08	Mars 1.6°S of Moon	4	12	Mars 4.0°N of Moon
21	03:29	Total Lunar Eclipse; mag=1.107	8	20:18	FIRST QUARTER
21	03:31	FULL MOON	10	20	Moon at Apogee: 404558 km
21	12	Saturn 2.8°N of Moon	13	14	Jupiter 2.8°N of Moon
24	09	Saturn at Opposition	15	01	Neptune at Opposition
28	01	Moon at Apogee: 404442 km	16	21:10	Partial Lunar Eclipse; mag=0.805
29	02:21	LAST QUARTER	16	21:18	FULL MOON
Mar 3	01	Jupiter 3.6°N of Moon	23	23:52	LAST QUARTER
3	11	Mercury at Greatest Elong: 27.1°W	26	04	Moon at Perigee: 368693 km
5	14	Mercury 0.2°N of Moon: Occn.	30	19:59	NEW MOON
5	19	Venus 0.2°S of Moon: Occn.	Sep 1	21	Venus 5.3°N of Moon
7	17:15	NEW MOON	1	23	Mercury 2.9°N of Moon
9	05	Uranus-Sun Conjunction	4	02	Saturn-Sun Conjunction
10	22	Moon at Perigee: 366302 km	7	14:03	FIRST QUARTER
14	10:48	FIRST QUARTER	7	15	Moon at Apogee: 404210 km
15	03	Mars 1.7°S of Moon	9	20	Jupiter 2.8°N of Moon
19	15	Saturn 2.6°N of Moon	11	04	Mercury at Greatest Elong: 26.9°E
20	05:50	Vernal Equinox	13	11	Uranus at Opposition
21	12	Venus at Aphelion	15	09:15	FULL MOON
21	18:40	FULL MOON	20	03	Moon at Perigee: 368890 km
26	20	Moon at Apogee: 405094 km	22	05:10	LAST QUARTER
29	21:47	LAST QUARTER	22	15:46	Autumnal Equinox
30	17	Jupiter 3.2°N of Moon	27	20	Saturn 4.5°N of Moon
Apr 5	01	Venus 4.7°S of Moon	29	08:13	NEW MOON
6	03:56	NEW MOON	Oct 2	02	Venus 5.1°N of Moon
7	19	Moon at Perigee: 361083 km	5	11	Moon at Apogee: 404716 km
12	06	Mars 1.2°S of Moon: Occn.	6	21	Mercury at Inferior Conjunction
12	18:34	FIRST QUARTER	7	07	Jupiter 2.5°N of Moon
15	19	Saturn 2.6°N of Moon	7	09:04	FIRST QUARTER
16	07	Mercury at Superior Conjunction	14	20:04	FULL MOON
20	10:26	FULL MOON	17	06	Moon at Perigee: 363828 km
23	10	Moon at Apogee: 405945 km	21	12:02	LAST QUARTER
27	05	Jupiter 2.8°N of Moon	22	09	Mercury at Greatest Elong: 18.3°W
28	14:10	LAST QUARTER	28	23:15	NEW MOON
May 5	12:19	NEW MOON	Nov 1	08	Venus 2.6°N of Moon
6	03	Moon at Perigee: 357772 km	2	05	Moon at Apogee: 405723 km
10	14	Mars 0.2°S of Moon: Occn.	3	22	Jupiter 1.9°N of Moon
12	03:48	FIRST QUARTER	6	04:05	FIRST QUARTER
13	00	Saturn 2.8°N of Moon	13	06:19	FULL MOON
13	00	Mars at Aphelion	14	10	Moon at Perigee: 358973 km
14	04	Mercury at Greatest Elong: 21.8°E	19	21:38	LAST QUARTER
20	02:12	FULL MOON	25	17	Mercury at Superior Conjunction
20	14	Moon at Apogee: 406404 km	27	16:56	NEW MOON
24	11	Jupiter 2.5°N of Moon	29	17	Moon at Apogee: 406480 km
28	02:53	LAST QUARTER	Dec 1	15	Jupiter 1.3°N of Moon
Jun 3	13	Moon at Perigee: 357251 km	1	16	Venus 0.8°S of Moon: Occn.
3	19:24	NEW MOON	5	21:29	FIRST QUARTER
7	15	Mercury at Inferior Conjunction	5	22	Mars-Sun Conjunction
8	02	Mars 1.1°N of Moon: Occn.	12	16:39	FULL MOON
9	04	Venus at Superior Conjunction	12	22	Moon at Perigee: 356568 km
9	09	Saturn 3.1°N of Moon	19	10:34	LAST QUARTER
10	15:03	FIRST QUARTER	21	12:05	Winter Solstice
16	18	Moon at Apogee: 406229 km	26	18	Moon at Apogee: 406602 km
18	17:31	FULL MOON	27	12:24	NEW MOON
20	13	Jupiter 2.4°N of Moon	29	09	Jupiter 0.6°N of Moon: Occn.
21	00:01	Summer Solstice	31	21	Venus 3.4°S of Moon
26	12:07	LAST QUARTER			

Date	TDT (h:m)	Event
Jan 4	12:00	FIRST QUARTER
4	14	Earth at Perihelion
4	14	Mercury at Greatest Elong: 19.3°E
10	11	Moon at Perigee: 357501 km
11	03:28	FULL MOON
14	23	Venus at Greatest Elong: 47.1°E
18	02:47	LAST QUARTER
20	16	Mercury at Inferior Conjunction
23	00	Moon at Apogee: 406116 km
24	07	Jupiter-Sun Conjunction
26	07:56	NEW MOON
26	07:57	Annular Solar Eclipse; mag=0.927
30	12	Venus 2.8°S of Moon
Feb 2	23:17	FIRST QUARTER
3	13	Uranus at Aphelion
7	20	Moon at Perigee: 361487 km
9	14:39	Pen. Lunar Eclipse; mag=0.895
9	14:50	FULL MOON
12	07	Neptune-Sun Conjunction
13	21	Mercury at Greatest Elong: 26.1°W
16	21:36	LAST QUARTER
19	17	Moon at Apogee: 405132 km
21	13	Venus at Perihelion
22	22	Mercury 1.1°S of Moon: Occn.
23	01	Jupiter 0.7°S of Moon: Occn.
23	08	Mars 1.7°S of Moon
25	01:37	NEW MOON
27	23	Venus 1.3°N of Moon
Mar 4	07:48	FIRST QUARTER
7	15	Moon at Perigee: 367020 km
8	19	Saturn at Opposition
11	02:38	FULL MOON
13	10	Uranus-Sun Conjunction
18	17:46	LAST QUARTER
19	13	Moon at Apogee: 404302 km
20	11:45	Vernal Equinox
22	21	Jupiter 1.5°S of Moon
24	14	Mars 4.1°S of Moon
26	16:08	NEW MOON
27	20	Venus at Inferior Conjunction
31	03	Mercury at Superior Conjunction
Apr 2	03	Moon at Perigee: 370014 km
2	14:34	FIRST QUARTER
9	14:56	FULL MOON
16	09	Moon at Apogee: 404232 km
17	13:34	LAST QUARTER
19	16	Jupiter 2.3°S of Moon
21	12	Mars at Perihelion
22	14	Venus 1.1°S of Moon: Occn.
25	03:24	NEW MOON
26	08	Mercury at Greatest Elong: 20.4°E
26	17	Mercury 1.9°S of Moon
28	06	Moon at Perigee: 366042 km
May 1	20:43	FIRST QUARTER
9	04:02	FULL MOON
14	03	Moon at Apogee: 404916 km
17	07:25	LAST QUARTER
17	08	Jupiter 3.0°S of Moon
18	10	Mercury at Inferior Conjunction
21	08	Venus 6.7°S of Moon
24	12:12	NEW MOON
26	04	Moon at Perigee: 361155 km
31	03:19	FIRST QUARTER
Jun 5	20	Venus at Greatest Elong: 45.8°W
7	18:12	FULL MOON
10	16	Moon at Apogee: 405786 km
13	12	Mercury at Greatest Elong: 23.5°W
13	18	Jupiter 3.5°S of Moon
13	21	Venus at Aphelion
15	22:15	LAST QUARTER
21	05:46	Summer Solstice
22	19:36	NEW MOON
23	11	Moon at Perigee: 358018 km
29	11:25	FIRST QUARTER

Date	TDT (h:m)	Event
Jul 4	07	Earth at Aphelion
7	09:22	FULL MOON
7	09:38	Pen. Lunar Eclipse; mag=0.145
7	22	Moon at Apogee: 406233 km
10	22	Jupiter 3.6°S of Moon
14	02	Mercury at Superior Conjunction
15	09:56	LAST QUARTER
18	12	Mars 4.9°S of Moon
19	05	Venus 5.9°S of Moon
21	20	Moon at Perigee: 357465 km
22	02:35	NEW MOON
22	02:37	Total Solar Eclipse; mag=1.081
28	21:57	FIRST QUARTER
Aug 4	01	Moon at Apogee: 406027 km
6	00:41	Pen. Lunar Eclipse; mag=0.400
6	00:56	FULL MOON
6	22	Jupiter 3.4°S of Moon
13	18:59	LAST QUARTER
14	19	Jupiter at Opposition
16	03	Mars 3.2°S of Moon
17	14	Neptune at Opposition
17	21	Venus 1.7°S of Moon
19	05	Moon at Perigee: 359642 km
20	10:02	NEW MOON
22	12	Mercury 2.9°N of Moon
24	16	Mercury at Greatest Elong: 27.4°E
27	11:41	FIRST QUARTER
31	11	Moon at Apogee: 405269 km
Sep 2	21	Jupiter 3.1°S of Moon
4	16:04	FULL MOON
12	02:20	LAST QUARTER
13	16	Mars 1.1°S of Moon: Occn.
16	08	Moon at Perigee: 364054 km
16	18	Venus 3.3°N of Moon
17	18	Uranus at Opposition
17	18	Saturn-Sun Conjunction
18	18:45	NEW MOON
20	10	Mercury at Inferior Conjunction
22	21:20	Autumnal Equinox
26	04:51	FIRST QUARTER
28	04	Moon at Apogee: 404432 km
30	00	Jupiter 3.0°S of Moon
Oct 4	06	Venus at Perihelion
4	06:12	FULL MOON
6	01	Mercury at Greatest Elong: 17.9°W
11	09:00	LAST QUARTER
12	01	Mars 1.1°N of Moon: Occn.
13	12	Moon at Perigee: 369068 km
16	19	Venus 6.8°N of Moon
18	05:33	NEW MOON
25	23	Moon at Apogee: 404168 km
26	00:46	FIRST QUARTER
27	09	Jupiter 3.2°S of Moon
Nov 2	19:15	FULL MOON
5	08	Mercury at Superior Conjunction
7	08	Moon at Perigee: 368900 km
9	06	Mars 3.5°N of Moon
9	15:59	LAST QUARTER
16	19:14	NEW MOON
22	20	Moon at Apogee: 404736 km
23	22	Jupiter 3.7°S of Moon
24	21:44	FIRST QUARTER
Dec 2	07:32	FULL MOON
4	14	Moon at Perigee: 363479 km
9	00:15	LAST QUARTER
16	12:03	NEW MOON
18	08	Mercury 1.4°S of Moon
18	17	Mercury at Greatest Elong: 20.3°E
20	15	Moon at Apogee: 405731 km
21	15	Jupiter 4.2°S of Moon
21	17:48	Winter Solstice
24	17:41	FIRST QUARTER
31	19:14	FULL MOON
31	19:25	Partial Lunar Eclipse; mag=0.067

Date	TDT (h:m)	Event
Jan 1	21	Moon at Perigee: 358684 km
2	21	Earth at Perihelion
4	19	Mercury at Inferior Conjunction
7	10:40	LAST QUARTER
11	21	Venus at Superior Conjunction
15	07:10	Annular Solar Eclipse; mag=0.919
15	07:13	NEW MOON
17	02	Moon at Apogee: 406434 km
23	10:57	FIRST QUARTER
24	14	Venus at Aphelion
27	05	Mercury at Greatest Elong: 24.8°W
29	19	Mars at Opposition
30	06:19	FULL MOON
30	09	Moon at Perigee: 356593 km
Feb 5	23:48	LAST QUARTER
12	06	Mercury 2.3°S of Moon
13	02	Moon at Apogee: 406542 km
14	02:53	NEW MOON
14	17	Neptune-Sun Conjunction
22	00:42	FIRST QUARTER
27	22	Moon at Perigee: 357832 km
28	12	Jupiter-Sun Conjunction
28	16:39	FULL MOON
Mar 7	15:42	LAST QUARTER
12	10	Moon at Apogee: 406011 km
14	13	Mercury at Superior Conjunction
15	21:03	NEW MOON
17	15	Uranus-Sun Conjunction
20	17:33	Vernal Equinox
22	00	Saturn at Opposition
23	10:57	FIRST QUARTER
25	14	Mars 4.5°N of Moon
28	05	Moon at Perigee: 361877 km
30	02:26	FULL MOON
31	00	Mars at Aphelion
Apr 6	09:37	LAST QUARTER
8	23	Mercury at Greatest Elong: 19.3°E
9	03	Moon at Apogee: 404999 km
14	12:31	NEW MOON
16	13	Venus 4.1°S of Moon
21	18:15	FIRST QUARTER
22	10	Mars 4.6°N of Moon
24	21	Moon at Perigee: 367142 km
28	12:19	FULL MOON
28	17	Mercury at Inferior Conjunction
May 6	04:16	LAST QUARTER
6	22	Moon at Apogee: 404231 km
14	01:06	NEW MOON
16	10	Venus 0.1°S of Moon: Occn.
16	23	Venus at Perihelion
20	09	Moon at Perigee: 369729 km
20	23:38	FIRST QUARTER
26	02	Mercury at Greatest Elong: 25.1°W
27	23:08	FULL MOON
Jun 3	17	Moon at Apogee: 404266 km
4	22:16	LAST QUARTER
12	11:16	NEW MOON
15	07	Venus 3.9°N of Moon
15	15	Moon at Perigee: 365937 km
19	04:27	FIRST QUARTER
21	11:29	Summer Solstice
26	11:31	FULL MOON
26	11:40	Partial Lunar Eclipse; mag=0.527
28	12	Mercury at Superior Conjunction

Date	TDT (h:m)	Event
Jul 1	10	Moon at Apogee: 405036 km
4	14:39	LAST QUARTER
6	14	Earth at Aphelion
11	19:30	Total Solar Eclipse; mag=1.057
11	19:41	NEW MOON
13	11	Moon at Perigee: 361116 km
15	01	Venus 6.0°N of Moon
18	10:12	FIRST QUARTER
26	01:38	FULL MOON
29	00	Moon at Apogee: 405955 km
Aug 3	05:03	LAST QUARTER
7	01	Mercury at Greatest Elong: 27.4°E
10	03:09	NEW MOON
10	18	Moon at Perigee: 357858 km
12	02	Mercury 2.4°N of Moon
13	12	Venus 4.5°N of Moon
16	18:18	FIRST QUARTER
20	02	Venus at Greatest Elong: 46.0°E
20	03	Neptune at Opposition
24	17:06	FULL MOON
25	06	Moon at Apogee: 406390 km
Sep 1	17:25	LAST QUARTER
3	12	Mercury at Inferior Conjunction
8	04	Moon at Perigee: 357193 km
8	10:30	NEW MOON
11	13	Venus 0.3°N of Moon: Occn.
15	05:55	FIRST QUARTER
19	17	Mercury at Greatest Elong: 17.9°W
21	08	Moon at Apogee: 406169 km
21	12	Jupiter at Opposition
22	01	Uranus at Opposition
23	03:10	Autumnal Equinox
23	09:19	FULL MOON
Oct 1	00	Saturn-Sun Conjunction
1	03:54	LAST QUARTER
6	14	Moon at Perigee: 359453 km
7	18:45	NEW MOON
9	16	Venus 3.3°S of Moon
10	02	Mars 3.5°N of Moon
14	21:32	FIRST QUARTER
17	01	Mercury at Superior Conjunction
18	18	Moon at Apogee: 405433 km
23	01:38	FULL MOON
29	01	Venus at Inferior Conjunction
30	12:46	LAST QUARTER
Nov 3	17	Moon at Perigee: 364189 km
6	04:52	NEW MOON
7	22	Mars 1.6°N of Moon
13	16:42	FIRST QUARTER
15	12	Moon at Apogee: 404634 km
21	17:29	FULL MOON
28	20:37	LAST QUARTER
30	19	Moon at Perigee: 369439 km
Dec 1	16	Mercury at Greatest Elong: 21.5°E
2	21	Venus 6.4°N of Moon
5	17:37	NEW MOON
7	09	Mercury 1.8°S of Moon
13	09	Moon at Apogee: 404408 km
13	14:00	FIRST QUARTER
20	01	Mercury at Inferior Conjunction
21	08:15	FULL MOON
21	08:17	Total Lunar Eclipse; mag=1.252
21	23:39	Winter Solstice
25	12	Moon at Perigee: 368463 km
27	16	Venus at Perihelion
28	04:19	LAST QUARTER

TWELVE YEAR PLANETARY EPHEMERIS: 1995-2006

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